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OR,

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OF

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ILLUSTRATED WITH SEVERAL HUNDRED ENGRAVINGS.

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ADVERTISEMENT.

On the first of June, 1836, a new series of the "FAMILY MAGAZINE," was commenced, under the auspices of an "Association of Gentlemen," distinguished for their proficiency in the different branches of natural science.

The first volume is now completed; and the proprietors have confidence in offering it to the publick, as an earnest of what may be expected from them hereafter; and at the same time fearlessly challenge a comparison of this volume, with other works of a similar character, confident that it possesses peculiar claims upon the patronage of the American people.

The embellishments of this volume, will be found to be of a superiour character, to those in the old series. Many of them, in fact, the frontispieces of the different monthly numbers, have been designed and drawn expressly for this work, by Mr. John G. Chapman, of New York, an artist recently selected by Congress, to paint an historical picture, for one of the vacant panels in the rotunda of the Capitol at Washington. Among these embellishments, the "Residences of the different Presidents,"—"The Boatswain's Mate,"—"The Rescue of Captain Smith,"—"The battle between Pizarro and Almagro,"—"Braddock's Defeat,"—"Washington's Headquarters, at Cambridge, Mass.,"—"Emigration," &c., &c., are equal if not superiour to any thing of the kind ever executed in the United States. The views of Charleston, Albany, Auburn, and Cooperstown, have been pronounced, by all acquainted with those places, to be extremely accurate. The different heads given in the work, as those of Vespucius, De Soto, Raleigh, Pocahontas, Samuel Adams, West, and Bolivar, are from authentick portraits of those distinguished individuals. Under the head of "Natural History," we would call the attention of the publick to the portrait of Nancy, the largest living orang outang ever seen in America or Europe. The Costumes of different nations, the views of spots mentioned in Scripture, of the different ports visited by American vessels, illustrations of remarkable vegetable productions, &c., &c., amounting to five hundred or upward, have justly given to the Family Magazine, a value, far beyond the price demanded for it.

In regard to literary matter, the Family Magazine is both useful and agreeable. Under the heads, "Useful Arts," and "Useful Knowledge," almost every person, of every rank and condition in life, may find something of decided practical utility—something which may be turned directly to account. In the "Farmers' Department," are recorded many of the improvements daily introduced into agriculture. The heads "American Antiquities," and "Miscellany," imbody, in a permanent form, much that will be important to the future historian of our country, and much that will be valued, when the hand of civilization has swept away the few remnants which now exist of our ancient population. The same remark will apply also, and with great propriety, to the Indian traditions which we have preserved. "The Piâsa," obligingly furnished by J. Russell, Esq., of Bluffsdale, Ill., a gentleman alive to the importance of such traditions, "The Legend of Monument Mountain," "Indian Feasts," "Indian Written Language," "Indian Death Blast," &c., &c., are all deeply interesting to the American scholar. For many suggestions on these subjects, the proprietors feel indebted to Prof. John W. Francis, a gentleman, whose discourse before the New York Lyceum of Natural History, (extracts from which, will be found in our pages,) is sufficient, independent of many other claims on the gratitude of the American people, to entitle him to a distinguished place among the advocates of American principles—among the benefactors of his country.

Of a different character are the "Revolutionary Anecdotes," and "Revolutionary Reminiscences:" these serve to keep before our readers, the recollection of what was achieved in the

dark and perilous hours of our fathers' struggle for freedom, and by reminding them, at what cost the glorious prize of AMERICAN INDEPENDENCE was obtained—they inculcate the necessity of watching, with a jealous eye, the noble institutions bequeathed to us.

The articles on "NATURAL HISTORY," and "BOTANY," embrace much that is both scientifick and popular. The "LITERARY NOTICES," give a summary view of the new books transmitted to us, by those booksellers who wish their publications noticed.

Nor have the LADIES been neglected. In a department devoted expressly to them, will be found many hints for the manufacture of Fancy articles; and directions for those exercises which contribute both to the grace and beauty of the form. The hints on Domestick economy—on the management of children, &c., &c., have been well received.

Before concluding, the proprietors would take this opportunity of acknowledging the liberal patronage conferred on this work.

The second volume of the new series, will be commenced in June, under the same editorial management.

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EMIGRATION.—Encampment for the night.

THE

FAMILY MAGAZINE.

1836.

EMIGRATION.

The frontispiece of the present number represents a halt for the night of an emigrant with his family—one, perhaps, who has left his natal soil and the inheritance of his fathers, and seeks in the far west for that independence in his worldly circumstances which he has tried in vain to gain from the stony and barren patrimonial homestead: or perhaps one who has looked on his rapidly-increasing family, and, ambitious of doing something for his children while he is in the prime of life, or anxious to see them settled comfortably around him, that his old age may be cheered by their presence, has resolved to go to the *far west*, the land which is represented as flowing with milk and honey, the land which repays with an hundred fold the labour expended on it, and the riches of whose bosom far exceed those in the mines of Peru.

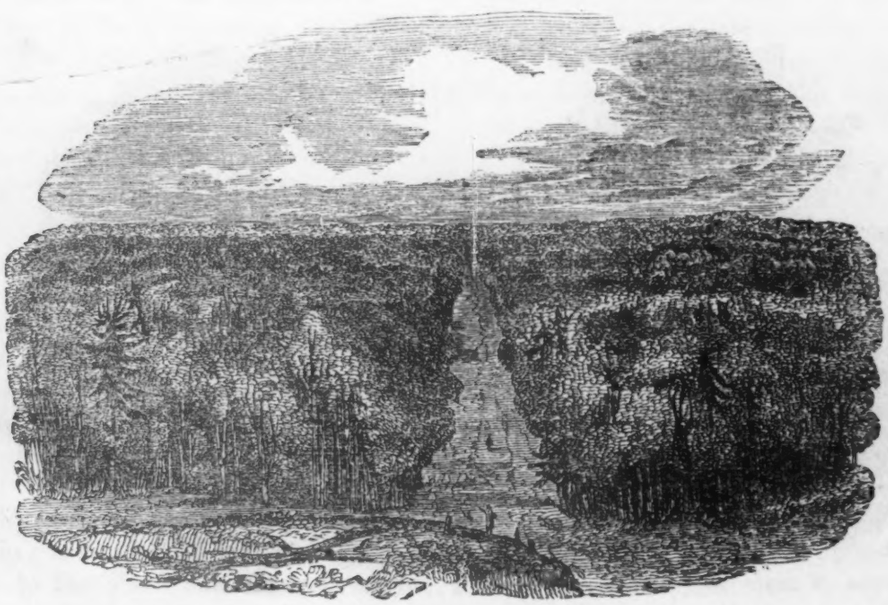
Resolved to migrate, the emigrant collects together his little property, and provides himself with a wagon and with two or three horses, as his means permit;—a rifle, a shot-gun, and an axe slung over his shoulder, form part of his equipments, and his trusty dog becomes the companion of his journey.—In the wagon are placed his bedding, his provisions, and such cooking-utensils as are indispensably necessary. Every thing being ready, the wife and children take their seats, the father of the family mounts the box, and now they are on the move. As they pass through the village, which has been to them the scene of many happy hours, they take a last look at the spots which are hallowed by association; the church, with its lowly spire, an emblem of that humility which befits the Christian—and the burial-ground, where the weeping-willow bends mournfully over the headstone which marks the parent's grave; nor do the children forget their playground, nor the white schoolhouse where the rudiments of education have been instilled into their minds.

The road is at first comparatively smooth, and their journey pleasant; their way is chequered with divers little incidents, while the continual changes in the appearances of the country around them, and the anticipation of what is to come, prevent those feelings of despondency which might otherwise arise, on leaving a much-loved home. When the roads are bad, or hilly, the family quit the wagon, and plod their way on foot; and at night they may be seen assembled round the fire made by the roadside, partaking of their frugal supper. The horses are unharnessed, watered, and secured with their heads to the trough; and the emigrants arrange themselves for the night, while their faithful dog keeps watch. Or if the close of the day finds them near a tavern or farm-house, a bargain is struck for the use of the fireplace and part of the kitchen, and the family pass the night on the floor, their feet to the embers and their heads pillowed on the saddles. Amid all the privations and vicissitudes in their journey, they are cheered up by the consciousness that each day lessens the distance between them and the land of promise, and that the fertile soil of the west will recompense them for all their trials.

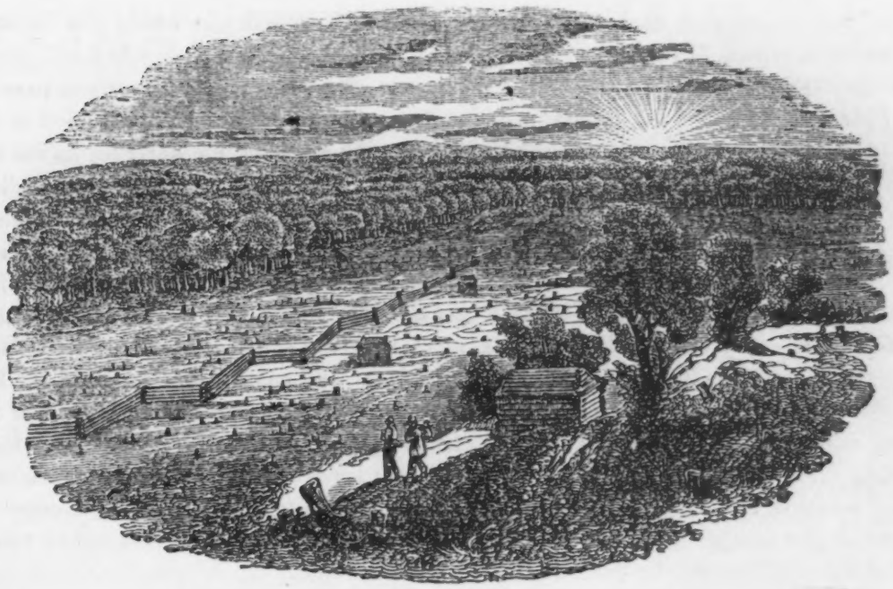
At length our *flitters*, as they are called, reach the banks of the Ohio, whose placid bosom seems to invite their embarkation, while countless boats of every description meet their astonished gaze. We have resided many years at the west, and during this period have been with hundreds and hundreds who have seen the Ohio river for the first time, and we have never known an individual who has gazed upon its broad expanse of water with a feeling of disappointment or regret; on the contrary, like pilgrims to the Holy Land, they forget all their pains and privations, and view it as indicating that the object of their journey is nearly attained.

Our travellers, after resting themselves for a few days, again take up their line of march; for the Ohio river, which was formerly the termination of all pilgrimages, is now but the frontier of a new country, and but the starting-point for the *far-distant* west. The roads soon become more and more rough; the swamps and little forest-streams are rendered passable by logs placed side by side, and the bridges thus formed are termed *corduroy*, from their ridgy and striped appearance. The axe and the rifle of the emigrant are now brought daily and almost hourly into use: with the former, he cuts down saplings or young trees to throw across the roads, which in many places are almost impassable; with the latter, he kills squirrels, wild-turkeys, or such game as the forest affords him; for by this time his provisions are exhausted. If perchance a buck crosses his path, and is brought down by a lucky shot, it is carefully dressed, and hung up in the forks of the trees; fires are built, and the meat is cut into small strips, and smoked and dried for future subsistence. This is the mode of *preserving* the game of the forest, and these are the *game-laws* of the western pioneer.

The road through the woods now becomes intricate, the trees being merely felled and drawn aside, so as to permit a wheeled-carriage to pass; and the emigrant is often obliged to be guided in his route only by the *blaze* of the surveyor on the trees, and at every few rods to cut away the branches which obstruct his passage. The stroke of his axe reverberates through the woods, but no answering sound meets the woodman's ear, to assure him of the presence of friend or foe. At night, in these solitudes, he hears and sees the wolves stealing through the gloom, and snuffing the scent of the intruders; and now and then the bloodshot eye of the catamount glares through the foliage. At length, the emigrant arrives at the landmarks which indicate to him the proximity of his own possessions. A location for the cabin is now selected, near a small stream of running water, and, if possible, on the south side of a slight elevation. No time is lost; the trees are immediately felled, and in a few days you can perceive a cleared space of ground, of perhaps a few rods in circumference; stakes, forked at the tops, are driven into the ground, on which are placed logs, and the chinks between these are stopped with clay, mixed with lime, if these can be obtained. An enclosure is thus thrown up hastily, to protect the inmates from the weather. The trunks of the trees, are rolled to the edge of the clearing, and surmounted by stakes driven crosswise into the ground; the caps or the tops of the trees are piled on the trunks, and thus is formed a *brush-fence*, as it is termed. By degrees, the surrounding trees are *girdled*, (a circle of bark being removed from them,) and they die: such as are fit to make into rails, are cut down and split; those unfit for this purpose, are left to rot, or are *logged up* and burned.



[Road through a Forest.]



[A Clearing.]

The next season, a visible improvement has taken place; several acres have been added to the clearing; the woodman's residence begins to assume the dignified appearance of a farm; the *brush-fence* is replaced by a *worm-fence*, or one which runs zigzag, as is seen in the cut; the temporary shanty is transformed into a comfortable log-cabin; and although the chimney is built of mud or clay, instead of bricks and mortar, and occupies one end of the house, it only shows that the inward man is duly attended to; and the savoury fumes of venison, of the prairie-hen, and of other good things, prove that the comforts of this life are not forgotten, and that due respect is paid to that important organ in the human economy, the stomach.

In a few years, or even months, the retired cabin, once so solitary, becomes the nucleus of a little settlement; other sections and quarter-sections of land are entered at the land-office by new-comers; new portions of ground are cleared, cabins are erected; and in a short time our youthful city can turn out a force of eight or ten efficient hands, for a *raising-bee*, a *logging-bee*, &c., &c. A sawmill is soon in operation on one of the neighbouring streams, the log-huts receive a poplar weather-boarding, and, as the little settlement increases, a schoolhouse and church appear; a mail is established, and, before many years elapse, a fine road is made to the nearest town; a stage-coach, which runs once or twice a week, connects the frontier with the populous country to the east of it; and the traveller has thus an opportunity of viewing another evidence of American enterprise.

[Village of log-huts.]

BIOGRAPHY.

SIR WALTER RALEIGH—Born, 1552—Beheaded, 1618.

A NAME dear to Americans, for to him "is due the honour of projecting and of keeping up, by his persevering efforts and expensive expeditions, the idea of permanent British settlements in America. His name is thus associated with the origin of the independent states of North America, and must be reverenced by all who, from liberal curiosity or pious affection, study the early history of their country."

Walter Raleigh was born at Hayes, on the coast of Devonshire: when young, he was sent to Oriel college, Oxford, where he exhibited a restless ambition, which prompted him to seek distinction rather in the stirring scenes of the world, than the cloistered solitude of a college; and this natural inclination to adventure was fostered by the study of books relating to the conquests of the Spaniards in the new world, a species of reading which was the delight of his early years, and undoubtedly gave a colour to the whole tenour of his life.

His stay at Oxford therefore was short; and in 1559 he seized the opportunity of the civil wars in France, between the Huguenots and Catholicks, to visit that kingdom and commence his military education; but although engaged in war, he found leisure to study the histories of the discoveries of Columbus, the conquests of Cortes, and the sanguinary triumphs of Pizarro, which books were his especial favourites. Nor were there wanting, in the army in which he served, many others whose society encouraged his early devotion to such pursuits. It is not surprising, therefore, that the ardent mind of Raleigh should have eagerly embraced an opportunity of embarking in an adventure of this nature, which offered itself while he was in Holland.

His stepbrother, Sir Humphrey Gilbert, had published, in 1576, a treatise concerning a northwest passage to the East Indies, which is full of practical sense. The work appears to have made no inconsiderable impression upon the government; and Sir Humphrey, having obtained a patent from the queen to colonize such parts of North America as were not possessed by any of her allies, prevailed with Raleigh to abandon his military pursuits, and try his fortune in the voyage.

The project, however, failed. Many who had eagerly embarked in it became discontented; all desired an equal share of power; discord bred coldness and desertion; and Sir Humphrey and Raleigh at last found themselves obliged to put to sea with a few friends who disdained to leave them under such adverse circumstances. "When the shipping was in a manner prepared," says Edmond Haies, who was a principal actor in the enterprise, "and men ready upon the coast to go abroad, some brake consort, and followed courses degenerating from the voyage before pretended; others failed of their promises contracted, and the greater number were dispersed, leaving the general with a few of his assured friends, with whom he adventured to sea, where, having tasted of no less misfortune, he was shortly driven to retire home with the loss of a tall ship." On its homeward passage, the small squadron of Gilbert was dispersed and disabled by a Spanish fleet, and many of the company were slain. Although unsuccessful, in his first voyage, the instructions of Gilbert could not fail to be of service to Raleigh, who at this time was not much above twenty-five, while the admiral must have been in the maturity of his years and abilities. For some time after this, the life of Raleigh was that of a soldier: until Gilbert's patent being nearly expired, his attention was again called to his scheme for prosecuting discoveries in the new world. A second squadron was now fitted out, and the largest ship in it, which bore Raleigh's own name, was built under his own eye, and equipped at his expense. This expedition was commanded by Gilbert, and, although starting under favourable auspices, was unfortunate in its commencement, and ultimately fatal to its leader. In a short time, the Raleigh returned into the harbour, a contagious distemper having broken out on board. Gilbert pursued his voyage; and having reached the Baccalaos, originally discovered by John Cabot, and since called Newfoundland, took possession of it, and the adjoining coast in the name of the reigning English queen, Elizabeth. After a partial survey of the island, and an interview with the natives, whose disposition was pacifick and gentle, they steered south. But discontent, mutiny, and sickness broke out in the fleet. The Swallow was sent home with the sick, and the Delight was soon after completely wrecked. The admiral now hoisted his flag in the Squirrel, of ten tuns burden. The weather soon after became dark and lowering, and on the 9th of September, at midnight, this little vessel was swallowed up with all on board, and not a plank of her was ever seen again.

The melancholy fate of his brother did not deter Raleigh from the prosecution of his schemes. By the study of the Spanish voyages, and his conversations with some skilful mariners of that nation, whom he met in Holland and Flanders, he had learned that the Spanish ships always went into the Gulf of Mexico by St. Domingo and Hispaniola, and directed their homeward course by the Havana and the Gulf of Florida, where they found a continued coast on the west side, tending away north, which, however, they soon lost sight of by standing to the east, to make the coast of Spain. Upon these grounds, and for reasons deduced from analogy and a knowledge of the sphere, he concluded there must be a vast extent of land north of the Gulf of Florida, of which he resolved to attempt the discovery.

Probably, also, during his residence in France he might have become acquainted with the particulars of the voyage of Verazzano, or have seen the charts constructed by that navigator, who had explored the same coast nearly as far south as the latitude of Virginia. Having fully weighed this project, he laid a memoir before the queen and council, who approved of the undertaking; and in the beginning of 1584 her majesty granted, by her letters-patent, all such countries as he should discover in property to himself and his heirs, reserving to the crown the fifth part of the gold or silver ore which might be found. The patent contained ample authority for the defence of the new countries, the transport of settlers, and the exportation of provisions and commodities for their use.

Sir W. selected for the command of his projected voyage two experienced officers—Captain Philip Amadas and Arthur Barlow—to whom he gave

[Birthplace of Sir Walter Raleigh.]

minute written instructions, and who sailed with two ships, well manned and provisioned, on the 27th of April 1584. On the 10th of May they arrived at the Canaries; after which, keeping a southwesterly course, they made the West Indies; and, departing thence on the 10th of July, found themselves in shoal-water, discerning their approach to the lands by the delicious fragrance with which the air was loaded—"as if," to use the words of their letter to Raleigh, "we had been in the midst of some delicate garden, abounding with all kinds of odoriferous flowers."

"Arrived upon the coast, and sailing along upwards of one hundred and twenty miles, they at length found a haven, and disembarked. Their first step was to take possession of the country in the name of the queen; after which they ascended a neighbouring eminence, and discovered to their surprise that they had not landed on the continent, but on the island of Okakoke, which they found running parallel to nearly the whole coast of North Carolina. The valleys were finely wooded with cedars, around whose trunks wild vines hung in rich festoons; and the grape seemed so native to the soil, that the clusters covered the ground, and dipt into the sea. For two days no inhabitants were seen; but on the third a canoe with three men approached. One of them was easily prevailed on to come aboard, when the present of a shirt and some trinkets gained his confidence. On returning to his boat he began to fish, and having loaded it heavily, paddled back to the English, and, dividing his cargo into two parts, intimated that one was for the ship, and the other for the pinnace.

"Next day they received a visit from some canoes, in which were forty or fifty men, among whom was Granganimeo, the king's brother. Having first rowed within a short distance, they landed on the beach; and the chief, attended by his suite, who were handsome and athletick persons, fearlessly approached opposite the ship. A long mat was spread for him, on which he sat down; and four men of his followers, apparently men of rank, squatted themselves on the corner. Signs were made for the English to come forward; and on doing so, Granganimeo desired them to sit down beside him, showing every token of joy and welcome, first striking his own head and breast, and afterward those of the strangers, as if to express that they were all brethren. Presents were exchanged; and such was the reverence with which these people treated their prince that while he made a long harangue, they remained perfectly still, standing at a distance; even the four chiefs only venturing to communicate their feelings to each other in a low whisper. The gifts were received with delight; but on some trinkets being offered to the chiefs, Granganimeo quietly rose up, and, taking them away, put them into his own basket, intimating by signs that every thing ought to be given to him, these men being no more than his servants—a proceeding to which they submitted without a murmur. A trade was soon opened, in which the strangers made good profit, by exchanging beads and other trifles for rich furs and skins. On exhibiting their wares, Granganimeo's eye fixed with delight upon a pewter dish, for which he conceived the strongest desire. It became his at the price of twenty skins; and, having pierced a hole in the rim,

he hung it round his neck, making signs that it would serve as a breastplate to protect him against the arrows of his enemies.

"It was now found that these people were engaged in hostilities with a neighbouring nation, and that the absence of the king was occasioned by severe wounds lately received in battle, of which he lay sick at the chief town, six miles off. His brother, after a few days, again visited the English, attended by his wife and children, coming aboard and partaking of a collation, which they seemed to enjoy. Their manners were remarkable for ease and civility. The lady was a handsome little woman, extremely bashful. She wore a leathern mantle, with the fur next her skin, and her hair, which was long and black, was confined in a band of white coral; strings of pearl, as large as peas, hung from her ears, reaching to her middle. Her children had ear-rings of the same precious material, while those of her attendants were of copper. Granganimeo was dressed much in the same fashion as his wife. On his head he wore a broad plate of metal; but, not being permitted to examine it, they were uncertain whether it was copper or gold.

"A brisk trade now began with the natives; but no one was allowed to engage in it when the king's brother was present, except such chiefs as were distinguished by having plates of copper upon their heads. When this prince intended to visit the ship, he invariably intimated the number of boats which were to accompany him, by lighting on the shore an equal number of beacons. The navigators learned that, about twenty years before their arrival, a vessel belonging to a Christian country had been wrecked on the coast, all hands on board perishing; out of the planks cast ashore, the people had drawn the nails and bolts, with which they had formed some edgetools, not having possessed any previous to this accident; but these were very rude, and their common instruments consisted of shells and sharp flints. Considering such imperfect means, their canoes were admirably made, and large enough to hold twenty men. When they wished to construct one, they either burned down a large tree, or selected such as had been blown down by the wind, and laying a coat of gum and resin on one side, set fire to it, by which it was hollowed out; after which they scraped and polished it with their shells; and if found too shallow, laid on more resin, and burnt it down to the required depth.

"The soil of the country was rich, the air mild and salubrious, and they counted fourteen kinds of sweet-smelling trees, besides an underwood of laurel and box, with oaks whose girth was greater than those of England. The fruits were melons, walnuts, cucumbers, gourds, and esculent roots; and the woods were plentifully stocked with bucks, rabbits, and hares. After a short while, the adventurers, by invitation of the natives, explored the river, on whose banks was their principal town; but the distance to be travelled being twenty miles, they did not see the city. They reached, however, an island called Aonoak, where they found a village of nine houses, built of cedar, the residence of their friend Prince Granganimeo, who was then absent. His wife, with whom they were already acquainted, received them with distinguished hospitality, running out to meet them, giving directions to her servants to pull their boats on shore, and to carry the white strangers on their backs to her own house, where she feasted them with fish and venison, and afterward set before them a dessert of various kinds. These people were gentle and faithful, void of all deceit, and seemed to live after the manner of the golden age.

"As the surf beat high on the landing, they got wet, notwithstanding their mode of transport; but this inconvenience was soon remedied; a great fire being kindled, and their clothes washed and dried by the princess' women, while their feet were bathed in warm water. The natives expressed astonishment at the whiteness of their skins, and kindly patted them as they looked wonderingly at each other. During the feast, two men, armed with bows and arrows suddenly entered the gate, when the visiters, in some alarm, took hold of their swords, which lay beside them, to the great annoyance of their hostess, who at once detected their mistrust. She despatched some of her attendants to drive the poor fellows out at the gate, and who, seizing their bows and arrows, broke them in an instant. These arrows were made of small canes, pointed with shell or the sharp tooth of a fish. The swords, breastplates, and war-clubs, used by the natives, were formed of hardened wood; to the end of this last weapon, they fastened the horns of a stag or some other beast, and their wars were carried on with much cruelty and loss of life.

"The name of the country where the English land-was called Wingandacoa, and of the sovereign Wingina; but his kingdom was of moderate extent, and surrounded by states under independent princes, some of them in alliance and others at war with him. Having examined as much of the interiour as their time would permit, our countrymen sailed homeward, accompanied by two of the natives, named Wanchese and Manteo, and arrived in England in the middle of September.

"Raleigh was highly delighted with this new discovery, establishing, in so satisfactory a manner, the results of his previous reasoning, and undertaken at his sole suggestion and expense. His royal mistress, too, was scarcely less gratified; she gave her countenance and support to the schemes for colonization, which he begun to urge at court, and issued her command, that the new country, so full of amenity and beauty, should, in allusion to her state of life, be called Virginia."

Not long after this, Raleigh received the honour of knighthood, a dignity bestowed by Elizabeth with singular frugality and discrimination, and, about the same period, the grant of a patent to license the vending of wines throughout the kingdom; a monopoly extremely lucrative in its returns, and which was probably bestowed by Elizabeth to enable him to carry on his great schemes for the improvement of navigation, and the settlement of a colony in Virginia.

Sir Walter now fitted out a new fleet for America, the command of which he gave to Sir Richard Grenville; the fleet consisted of seven vessels; part of these were fitted out at Sir Walter's expense, the remainder by his companions in the adventure; one of whom was Thomas Candish or Cavendish, afterward so eminent as a navigator, who now served under Grenville.

"On the 19th of April, the mariners reached the

[Portrait of Sir Walter Raleigh.]

Canaries, from which they steered to Dominica in the West Indies, and landed at Puerto Rico, where they constructed a temporary fort. On the 26th of June, after some delays at Hispaniola and Florida, they proceeded to Wohoken in Virginia; and having sent notice of their arrival by Manteo, one of the two natives who had visited England, they were soon welcomed by their old friend Granganimeo, who displayed much satisfaction at their return. Mr. Ralph Lane, who had been invested with the dignity of chief-governour, now disembarked with one hundred and eight men, having as his deputy Philip Amadas, one of the original discoverers. Grenville does not appear to have been sufficiently impressed with the difficulties attending an infant colony in a new country; and, accordingly, after a short stay, during which was collected a valuable cargo of skins, furs, and pearls, he returned to England, carrying into Plymouth a Spanish prize, which he had captured on the homeward voyage, of three hundred tuns burden, and richly laden.

"The first survey of their new territory delighted the English; and the governour, in a letter to Hakluyt, who appears to have been his intimate friend, informs him that 'they had discovered the mainland to be the goodliest soil under the cope of heaven; abounding with sweet trees, that bring sundry rich and pleasant gums; * * and, moreover, of huge and unknown greatness: well peopled and towned, though savagely, and the climate so wholesome, that they had not one person sick since their arrival.'

"Lane fixed his abode on the island of Roanoke, and thence extended his researches eighty miles southward to the city of Secotan. He also pushed one hundred and thirty miles north, to the country of the Chesepians, a temperate and fertile region; and northwest to Chawanook, a large province, under a monarch named Menatonon. These proceedings, however, were soon interrupted, by the threatening aspect of affairs at head-quarters. Even before the departure of Grenville for England, an accident occurred, in which the conduct of the settlers appeared rash and impolitick. A silver cup had been stolen, and a boat was despatched to Aquascogok to reclaim it. Alarmed at this visit, the savages fled into the woods, and the enraged crew demolished the city and destroyed the corn-fields. A revenge so deep for so slight an injury incensed the natives; and although they artfully concealed their resentment, from that moment all cordiality between them and the strangers was at an end.

"Not long after, Menatonon and his son Skyco were seized and thrown into irons; but the monarch was soon liberated, while the youth was retained as a hostage for his fidelity. To all appearance, this precaution had the desired effect. But the king, although an untaught savage, proved himself an adept in dissimulation. Working upon the avarice and credulity of the English, he enticed them into the interiour of the country by a flattering report of its extraordinary richness and amenity. He asserted that they would arrive at a region where the robes of the sovereign and his courtiers were embroidered with pearl, and the beds and houses studded with the same precious material. Menatonon described also a remarkably rich mine, called by the natives chaumis temoatan, which was situated in the country of the Mangoaks, and produced a mineral similar to copper, although softer and paler.

"By these artful representations, Lane was persuaded to undertake an expedition by water, with two wherries and forty men. Instead, however, of

the promised relays of provisions, they found the towns deserted, and the whole country laid waste. Their boats glided along silent and solitary banks; and after three days, during which they had not seen a human being, their last morsel of food was exhausted, and the governour, now aware of the treachery of Menatonon, proposed to return. His men, however, entreated him to proceed, still haunted by dreams of the inexhaustible riches of the Mangaoaks' country, and declaring they could not starve as long as they had two mastiffs, which they might kill, and make into soup. Overcome by such arguments, Lane continued the voyage; but for two days longer no living thing appeared. At night, indeed, lights were seen moving on the banks, demonstrating that their progress was not unknown, though the observers were invisible. At last, on the third day, a loud voice from the woods suddenly called out the name of Manteo, who was now with the expedition. As the voice was followed by a song, Lane imagined it a pacifick salutation; but the Indian seized his gun, and had scarcely time to warn them that they were about to be attacked, when a volley of arrows was discharged into the boats. The travellers now landed, and assaulted the savages, who fell back into the depths of the wood, and escaped with little injury; upon which it was resolved to return to the settlement. On their homeward-bound voyage, which, owing to their descending with the current, was performed with great rapidity, they had recourse to the mastiff broth, or, as the governour terms it, 'dog's porridge,' and arrived at Roanoke in time to defeat a formidable conspiracy.

"The author of the plot was Wingina, who, since the death of his brother Granganimeo, had taken the name of Pemisapan. His associates were Skyco and Menatonon; and these two chiefs, pretending friendship, but concealing under its mask the most deadly enmity, had organized the plan of a general massacre of the colony. The design, however, was betrayed to Lane by Skyco, who had become attached to the English; and, aware of the necessity of taking immediate measures before Pemisapan could muster his forces, the governour gave instructions to seize any canoes which might offer to depart from the island. In executing this order, two natives were slain, and their enraged countrymen rose in a body, and attempted to overpower the colonists, but were instantly dispersed. Not aware, however, that his secret was discovered, and affecting to consider it as an accident, Pemisapan admitted Lane and his officers to an interview, which proved fatal to him. The Virginian monarch was seated in state, surrounded by seven or eight of his principal weroanees, or high chiefs; and after a brief debate, upon a signal given, the Europeans attacked the royal circle, and put them all to death.

"This alarming conspiracy had scarcely been put down, when the natives made a second attempt to get rid of the strangers, by neglecting to sow the adjacent lands, hoping, in this manner, to compel them to leave the country. At this decisive moment, a fleet of twenty-three vessels came in sight, which turned out to be the squadron of Sir Francis Drake, who had fortunately determined to visit the colony of his friend Sir Walter, and carry home news of their condition, on his return from an expedition against the settlements in the Spanish Main. It was now long past the time when supplies had been expected from England, and Drake generously offered every sort of provisions. Lane, however, only requested a vessel and some smaller craft to carry them home, which was immediately granted; but before they could get on board, a dreadful tempest, which continued for four days, dashed the barks intended for the colonists, to pieces, and might have driven on shore the whole fleet, unless, to use the language of the old despatch, 'the Lord had held his holy hand over them.' Deprived in this way of all other prospect of return, they embarked in Sir Francis' fleet, and arrived in England on the 27th of July, 1586.

"Scarcely, however, had they sailed, when the folly of their precipitate conclusion, that Raleigh had forgotten or neglected them, was manifested by the arrival, at Roanoke of a vessel of one hundred tuns, amply stored with every supply. Deeply disappointed at finding no appearance of the colony, they sailed along the coast, and explored the interiour.—But all their search was in vain, and they were compelled to take their departure for Europe. This, however, was not all. Within a fortnight after they weighed anchor, Sir Richard Grenville, with three well-appointed vessels, fitted out principally by Raleigh, appeared off Virginia, where, on landing, he found, to his astonishment, every thing deserted and in ruins. Having made an unsuccessful effort to procure intelligence of his countrymen, it became necessary to return home. But, unwilling to abandon so promising a discovery, he left behind him fifteen men, with provisions for two years, and, after some exploits against the Spaniards and the Azores, arrived in England.

"It is asserted by Camden, that tobacco was now, for the first time, brought into England by these settlers, and there can be little doubt that Lane had been directed to import it by his master, who must have seen it used in France, during his residence there. There is a well-known tradition, that Sir Walter first began to smoke privately in his study, and the servant coming in with his tankard of ale and nutmeg, as he was intent upon his book, seeing the smoke issuing from his mouth, threw all the liquor in his face by way of extinguishing the fire, and running down stairs, alarmed the family with piercing cries, that his master, before they could get up, would be burnt to ashes. 'And this,' continued Oldys, 'has nothing in it more surprising than the mistake of those Virginians themselves, who, the first time they seized upon a quantity of gunpowder, which belonged to the English colony, sowed it for grain, or the seed of some strange vegetable in the earth, with full expectation of reaping a plentiful crop of combustion by the next harvest, to scatter their enemies.'

"On another occasion, it is said that Raleigh, conversing with his royal mistress upon the singular properties of this new and extraordinary herb, assured her that he had so well experienced the nature of it that he could tell her the exact weight of the smoke in any quantity proposed to be consumed. Her majesty immediately fixed her thoughts upon the most impracticable part of the experiment, that of bounding the smoke in a balance; suspecting that he was playing the traveller with her, and laying a wager that he could not solve the doubt. Upon this,

Raleigh selected the quantity agreed on, and having thoroughly smoked it, set himself to weighing—but it was of the ashes; and in conclusion, demonstrating to the queen the difference between this and the weight of the tobacco, her majesty could not deny that this must be the weight of what was evaporated in smoke. Upon this, Elizabeth, paying down the money, remarked, that she had heard of many labourers in the fire who had turned their gold into smoke, but that Raleigh was certainly the first who had turned his smoke into gold."

Raleigh, however, was by no means discouraged by the unfortunate results of these expeditions; but again turned his attention to his Virginian colony, the failure of which was rather owing to the precipitate desertion of Lane, than to any fault in the original plan; and he determined to make a new attempt for the settlement of a country which held out so many encouragements from its salubrious climate and fertile soil. Hariot, who accompanied Lane, had by this time published his "True Report of the New found Land of Virginia," which created much speculation; so that he experienced little difficulty in procuring one hundred and fifty settlers. He appointed as governor, Mr. John White, with twelve assistants, to whom he gave a charter, incorporating them by the name of the "Governour and Assistants of the City of Raleigh in Virginia." These, in three vessels, furnished principally at his own expense, sailed from Portsmouth on the 26th of April, 1587, and on the 22d of July, anchored in Hatorask harbour. White, with forty men, proceeded in the pinnace to Roanoke to confer with the fifteen colonists, left by Sir Richard Grenville; but to his dismay found the place deserted, and human bones scattered on the beech; the remains, as was afterward discovered, of their countrymen, all of whom the savages had slain. A party then hastened to the fort on the north side of the island. But here the prospect was equally discouraging. No trace of a human being was to be seen; the building was razed to the ground, and the wild-deer were couching in the ruined houses, and feeding on the herbage and melons which had overgrown the floor and crept up the walls.

Although the governour held Raleigh's written orders to make the settlement on the bay of Chesepiock, he was obliged to abandon that plan, and commenced repairing the buildings at Roanoke. But disaster attended all their proceedings. Dissensions broke out among them; and White, either from want of firmness, or not being intrusted with sufficient authority, found it impossible to carry on his operations with success. The natives of Croatoan were friendly; those of Secota and Aquascogok, who had murdered the former colonists, completely hostile; but all were clothed alike; and before going to war, the Crotoans anxiously begged for some badge by which they might be recognised. In the confusion, this was neglected, and it led to unhappy consequences. Howe, an English sailor, while engaged in fishing, was slain by the savages, being pierced with sixteen arrows; and White, having in vain attempted to open a pacifick communication with the weroansees, or chief men of Secota, and Pomeiock, determined not to delay his revenge. Guided, therefore, by Manteo, he set out at midnight, with Captain Stafford and twenty-four men, and stealing in the dark upon the natives as they sat round a fire, shot some of them dead upon the spot, while others fled shrieking into a thicket, and one savage, who knew Stafford, rushed up, calling out his name and embracing his knees. To the grief and horror of the governour, it was then discovered that they had attacked a party of friends instead of enemies.

Soon after, Manteo, in obedience to Raleigh's directions, was christened, and created Lord of Roanoke and Dasamonwepuk; while Mrs. Eleanor Dare, the wife of one of the assistants, having given birth to a daughter, the infant was named Virginia, being the first Christian born in that country.

White was now anxious to fulfil Sir Walter's instructions; but disputes arose with renewed bitterness among the settlers. Though they were not in want of stores, many demanded permission to go home; others violently opposed this; and at last, after stating a variety of projects, all joined in requesting the governour to sail for England, and return with a supply of every thing requisite for the establishment of the colony. To this he reluctantly consented; and departing from Roanoke on the 27th of August, 1587, where he left eighty-nine men, seventeen women, and eleven children, he arrived in England on the 5th of November.

Our limits do not allow us to follow Sir Walter in his discovery of Guiana, and voyage up the Oronoko, and in his brave exploits against the fleets of Philip of Spain, nor in the vicissitudes which he experienced at the court of Elizabeth; at one time we find him enjoying her utmost confidence, exerting his influence in the cause of benevolence; and it is reported, that Elizabeth, somewhat irritated by his applications for the unfortunate, on his telling her one day he had a favour to ask, impatiently exclaimed, "When, Sir Walter, will you cease to be a beggar?" To which he made the noted answer, "When your gracious majesty ceases to be a benefactor."

Soon after, he was committed to the tower for presuming to marry without the queen's consent: he, however, was again restored to favour, and continued to aid the state by his services and counsel, till the death of Elizabeth, in 1602.

On the accession of James to the throne, Sir Walter was not only treated with coolness and neglect, but became the victim of a conspiracy; was tried for treason against the crown, found guilty, and condemned to death. Having been warned to prepare for execution, he sent a manly and affecting letter to his wife, from which the following is an extract:—

"When I am gone, no doubt you shall be sought to by many, for the world thinks that I was very rich. But take heed of the pretences of men, and their affections; for they last not but in honest and worthy men, and no greater misery can befall you in this life than to become a prey, and afterwards to be despised. I speak not this, God knows, to dissuade you from marriage; for it will be best for you, both in respect of the world and of God. As for me, I am no more yours, nor you mine. Death has cut us asunder, and God hath divided me from the world, and you from me. Remember your poor child for his father's sake, who chose you and loved you in his happiest time. Get those letters, if it be possible, which I writ to the lords, wherein I sued for my life. God is my witness it was for you and yours that I desired life. But it is true that

I disdain myself for begging it; for know it, dear wife, that your son is the son of a true man, and one who, in his own respect, despiseth death in all his mishapen and ugly forms. I cannot write much. God he knoweth how hardly I steal this time while others sleep; and it is also high time that I should separate my thoughts from the world. Beg my dead body, which, living, was denied thee, and either leave it at Sherborne, if the land continue, or in Exeter church, by my father and mother. I can say no more, time and death call me away.

"The everlasting, powerful, infinite, and omnipotent God, who is goodness itself, the true life and true light, keep thee and thine, have mercy on me, and teach me to forgive my persecutors and accusers, and send us to meet in his glorious kingdom. My dear wife, farewell! Bless my poor boy; pray for me, and let my good God hold you both in his arms! Written with the dying hand of some time thy husband, but now, alas! overthrown. Yours that was, but now not my own, RALEIGH."

Sir Walter, however, was reprieved at this time, but was confined in the tower for many years after, during which his history of the world was composed. On regaining his liberty, in 1615, a new expedition to Guiana was projected, of which Raleigh took command, but it was unsuccessful; and on his return to England, he was again arrested, imprisoned, and executed. His conduct, while on the scaffold, was extremely firm. The morning being sharp, the sheriff offered to bring him down off the scaffold to warm himself by the fire before he should say his prayers; "No, good Mr. sheriff," said he, "let us despatch, for within this quarter of an hour my ague will come upon me, and if I be not dead before that, mine enemies will say I quake for fear.' He then, to use the words of a contemporary and eyewitness, made a most divine and admirable prayer; after which, rising up, and clasping his hands together, he exclaimed, "Now I am going to God!" The scaffold was soon cleared; and having thrown off his gown and doublet, he bid the executioner show him the axe, which not being done immediately, he was urgent in his request. "I prithee," said he, "let me see it. Dost thou think I am afraid of it?" Taking it in his hand, he kissed the blade, and passing his finger slightly along the edge, observed to the sheriff, "'Tis a sharp medicine, but a sound cure for all diseases." He then walked to the corner of the scaffold, and kneeling down, requested the people to pray for him, and for a considerable time remained on his knees engaged in silent devotion; after which he rose, and carefully examined the block, laying himself down to fit it to his neck, and to choose the easiest and most decent attitude. In all this he would receive no assistance; and having satisfied himself, he rose and declared he was ready. The executioner now came forward, and kneeling, asked his forgiveness, upon which Raleigh laid his hand smilingly on his shoulder, and bade him be satisfied, for he most cheerfully forgave him, only entreating him not to strike, till he, himself, gave the signal, and then to fear nothing, and strike home. Saying this, he lay down on the block, and on being directed to place himself so that his face should look to the east, he answered, "It mattered little how the head lay, provided the heart was right." After a little while, during which it was observed, by the motion of his lips and hands, that he was occupied in prayer, he gave the signal; but whether from awkwardness or agitation, the executioner delayed; upon which, after waiting for a short time, he partially raised his head, and said aloud, "What dost thou fear? strike, man!" The axe then descended, and at two strokes the head was severed from the body, which never shrunk or altered its position, while the extraordinary effusion of blood evinced an unusual strength and vigour of constitution, though when he suffered, Sir Walter was in his sixty-sixth year. The head, after being, as usual, held up to the view of the people on either side of the scaffold, was put into a red bag, over which his velvet night-gown was thrown, and the whole immediately carried to a mourning-coach which was waiting, and conveyed to Lady Raleigh. This faithful and affectionate woman, who never married again, though she survived him twenty-nine years, had it embalmed and preserved in a case, which she kept with pious solicitude till her death.

The body was buried privately near the high altar of St. Margaret's church in Westminster, but no stone marks the spot.

SALMON OF THE COLUMBIA RIVER.

DR. GARDINER, says:—"I have ascertained already the existence of six distinct species of salmon in this river—five of which I have seen and preserved. The period of spawning of each is different. From what information I have collected regarding their habits, this is the country to study this singular fish. It is found at the very sources of the Columbia, notwithstanding the innumerable rapids and cataracts which must be passed. Almost every where the natives assert that the fish which ascend the stream never return to the sea, nor were the young salmon ever seen to descend to the ocean. The last is certainly incorrect, and must arise from the fry being still so small as to elude observation. The former is not unlikely, from the circumstance of the salmon, in the months of November and December, being found at the heads of all the streams, dying by thousands, and completely choaking up the current with their dead bodies. They have often been seen with their noses fairly worn down to the bone, and in the last stage of emaciation; yet still, by some unaccountable impulse, striving to ascend the stream to the very last gasp. It is singular that the salmon pass by some of the tributary streams in their passage upwards, and prefer some of them to others. Few or none, for instance, are ever got in the Kowalitit or Deasis rivers. They seem to delight in those streams where their progress is impeded by rapids and cascades; and it is remarked that in Frazee's river, no sooner have they emerged from the rapid current of the main stream into the still waters of Stewart's lake and other lakes, than they become flabby and of inferiour flavour. The muscular power of this fish is astonishing, even in a class of the animal kingdom remarkable for the energy of its movements; for they are seen to ascend channels at Kettle's Falls, into which a stone as large as a man's head, when dropped, is born downwards with the swiftness of an arrow, and where it is impossible, by any force, to push a pole even to an inconsiderable depth.

HISTORY OF THE AMERICAN EPISCOPAL CHURCH, PREVIOUS TO THE REVOLUTION.

BY THE REV. PROFESSOR CASWALL.

THE eastern shores of the country now denominated the United States, were discovered under English auspices, and claimed by the English monarch, as early as the year 1497. Yet, in deference to the authority of Pope Alexander VI., who had granted to the Spaniards all the territory more than a hundred leagues west of the Azores, no settlement was attempted prior to the reformation of the Anglican church. The feeble minority of Edward VI., distracted with factions, was not a more favourable period to schemes of doubtful utility, and the bigotry of his successor, Mary, disposed her to pay a sacred regard to that grant of the holy see, which vested in her husband, Philip, an exclusive right to the New World. It was not before the reign of Elizabeth that the English began seriously to form plans of settling colonies in those parts of America which hitherto they had only visited. Their early efforts, however, proved abortive, and no settlement was permanently established previous to the reign of James I.

On the 26th of April, 1607, two years before the settlement of Canada by the French, seven years before the founding of New York by the Dutch, and thirteen years before the landing of the Puritans at Plymouth, a small band of colonists disembarked on that coast, denominated, in honour of Queen Elizabeth, Virginia. They brought with them the refined habits of the higher orders of English society; they were members of the church established in the mother-country, and they were accompanied in their adventurous enterprise by an exemplary clergyman, (the Rev. Mr. Hunt,) whom they venerated as a father, and loved as a friend. Religious considerations had, in a great measure, conduced to their voluntary expatriation. They had been required by their sovereign to provide for the preaching of the gospel among themselves and the neighbouring Indians, and they had been taught to regard their undertaking as a work which, by the providence of God, might tend "to the glory of his divine majesty," and "the propagating of the Christian religion." The piety of the emigrants, stimulated by the exhortations of their pastor, led to the almost immediate erection of an humble building, dedicated to the service of the Almighty. On the 14th of May, within three weeks after their arrival, the colonists partook of the Lord's Supper: and Virginia commenced its career of civilization with the most impressive solemnity of the Christian church. Upon a peninsula which projects from the northern shore of James river, may still be seen the ruins of the first Episcopal place of worship in North America; and this, with its surrounding burial-ground, is now almost the only memorial of Jamestown.

Such were the fathers of the church in the newly-discovered continent; and it may be fairly presumed that, if all succeeding emigrants had possessed a kindred spirit, the form of religion which they introduced would have continued to prevail in the United States until the present day. But various causes soon contributed to multiply a very different class of settlers. In the year 1614, New York was colonized by the Dutch, who brought with them their own confession of faith, and their Presbyterian form of ecclesiastical government. In 1620, the Puritans succeeded in colonizing New England, and in establishing their peculiar doctrines and discipline. The Swedes and Finns introduced Lutheranism into Delaware and New Jersey in 1627; Maryland was settled by Roman Catholicks in 1634; and Pennsylvania by the society of Friends in 1681. Long before the termination of the 17th century, the members of the church of England in the colonies were exceeded in number by those of other persuasions. Nor was this all. From one denomination at least they soon began to experience opposition. The Puritans, although required by their charter to conform to the laws of England, had not scrupled to constitute a religious establishment, widely differing from that which the laws of England recognised. A few persons, offended at this procedure, withdrew from communion with their dissenting brethren, and assembled separately to worship God according to the liturgy of the church. This was too much to be patiently endured by the dominant majority. The leaders of the party, two brothers, named Brown, were expelled from the colony, and sent home to England. A monument has been erected to their memory in St. Peter's church at Salem, which describes these worthy men as the first champions of religious liberty in America. Heavy fines were inflicted on those who took part in the Episcopalian ceremonies, severe laws were enacted against "the observance of any such day as Christmas or the like," and an inquisition existed in substance, with a full share of its terrours and its violence.

As the country increased in population, the church, nevertheless, slowly advanced. Even in New England, a few churches were at length established, and, under a load of obloquy, gradually gathered strength. New York having fallen into the hands of the English, a church was erected in that city. Philadelphia, under the tolerant influence of the Friends, was blessed with an Episcopal place of worship; and in Maryland, several congregations were organized. The Cavaliers and their descendants fled to Virginia, during the persecutions of Cromwell's government; and in that country the church maintained undisputed pre-eminence for nearly a century, notwithstanding the efforts of missionaries from New England to produce a defection.

Up to the period of the revolutionary war, the number of Episcopalians was very small, except in the southern colonies. In Virginia and Maryland a provision for the maintenance of the clergy was made by law, the territory was divided into parishes, churches were built, and glebes attached. Here the church possessed all the authority, and commanded all the respect of a national establishment. But in the provinces north and east of Maryland the congregations were "few and far between," and generally confined to the larger towns. It is believed that the only considerable endowment by the English government in favour of the church in the northern colonies was a grant of lands to the Trinity church, New York. But during the early part of the eighteenth century, a zealous friend was raised up to the church in the British "Society for propagating the gospel in foreign parts." By means of this excellent institution, the greater part of the clergy resident in New England, New York, Pennsylvania and New Jersey, were maintained, and the

number of congregations considerably increased. To this society a very liberal grant was made by the colonial government, which, under equitable management, might have sufficed to support the institutions of the church to an indefinite extent. The territory of Vermont, when first surveyed, was divided into townships six miles square, one hundred and fourteen of which were granted by Governor Wentworth, an Episcopalian. In each of these, one right of land, containing usually three hundred and thirty acres, was reserved for the first settled minister, one right as a glebe for the church of England, and one for the propagation society. But the surveyors being unfriendly to Episcopacy, the lots reserved for the society and for the glebes, were often situated within the same identical spot, and often on mountains, rocks or morasses; in consequence of which the grant promoted but little the cause which it was designed to subserve.

It is obviously important that something should be said in regard to the character of the clergy previous to the revolution. It is the more desirable on account of the many misapprehensions which exist in regard to this subject. Let it then be remarked, that the missionaries of the propagation society were generally men of holy, self-denying lives, and of blameless reputation. The venerable association just mentioned, issued a notice in 1735 and subsequently, in which they besought those concerned to recommend no man to them as a missionary "but with a sincere regard to the honour of Almighty God and our blessed Saviour." In the same circular, they expressed their persuasion that any clergyman in America who had disgraced his character, must have gone thither without their knowledge, and they concluded by promising to dismiss any one in their employment, against whom a just complaint could be preferred. It is true, that many disorders prevailed in those districts where the law, by assigning a considerable stipend to ministerial services, held out an allurement to the unprincipled. And yet, even under these circumstances, the clergy and their people were free from many imputations which must for ever attach to the memory of their chief opponents. The absurd superstitions which flourished in the north, found an uncongenial soil in the southern colonies, and the terrifick excitements in regard to witchcraft had little nourishment where the mild and scriptural worship of the church prevailed. The severe laws of Virginia against dissent, carry an appearance of persecution; but let it be recollected that these laws were not often enforced, and, in fact, were little more than a nullity.

The disorders which actually existed should be traced to their proper source, the want of an efficient Episcopal supervision. The destitution again should be assigned, in all justice, to its principal cause, namely, the opposition of the powerful bodies of dissenters, especially the Puritans. For although the bishop of London was considered as the diocesan of the American Episcopal churches, it is evident that his authority could not be effectually exerted at such a distance, and unworthy clergymen could not be removed without serious difficulty. The jurisdiction of a prelate beyond the seas was also viewed with jealousy by many; and the attempt to obviate existing inconveniences by the delegation of a commissary, in 1700, met with but partial success. Other causes contributed to render the appointment of a colonial bishop extremely desirable. The only resources for a duly-authorized ministry were in emigration from the mother-country, and in sending candidates to that country for orders. The first could not be the channel of a respectable permanent supply, and the second was expensive and dangerous, many having perished on the ocean, or died by sickness, in their efforts to obtain ordination. At the same time, churchmen beheld the various non-episcopal sects around them multiplying their preachers *ad libitum*, and availing themselves of every opening afforded by the defenceless state of the adherents to apostolick order. The church, too, was of necessity presented to the people in an imperfect form, the rite of confirmation being unpractised, and almost unknown. It was undoubtedly owing to this unhappy state of affairs that, about the commencement of the 18th century, Baptists, Presbyterians, and others, obtained a footing in the southern colonies, where they increased with rapidity and vigour.

As early as the reign of Charles II., the colonists took measures to obtain an episcopate, which almost proved successful. The subject was agitated in following years, until the death of Queen Anne put a stop for a considerable time to all proceedings of this description. The church, nevertheless, continued to advance, and several distinguished dissenters were at different periods added to its ranks. Mr. Timothy Cutler, rector of Yale College, and Mr. Samuel Johnson, a tutor in the same institution, both congregational ministers, became convinced, after indefatigable study, that their ordination was invalid; and shortly afterward connected themselves with the church of England. Being joined by several other persons of note, their defection was a great shock to the existing establishment. They proceeded to England for ordination, and on their return in 1723, Dr. Cutler was settled as a pastor of Christ church, in Boston, and Mr. Johnson as missionary of the propagation society in Connecticut. In that colony the latter was for some time the only Episcopal clergyman; but distinguishing himself by his contrivances in behalf of the church, he was appointed in 1754, president of King's College, New York. By his writings, he succeeded in awakening general attention to the question of Episcopacy; and about the year 1763 the applications for a bishop were renewed. At this, the dissidents from the church in New England took alarm, and strongly resisted the introduction of the only means by which their conforming brethren could fully practise the rites which their faith demanded. In addition to this, they contended that the propagation society transcended its powers, when it authorized its missionaries to settle in the villages and seaports of New Hampshire, Connecticut, and Massachusetts. Dr. Mayhew, a congregational preacher in Boston, was the leader of this controversy in behalf of the dissenters; while a talented advocate for the church was found in the Rev. East Apthorp, a missionary at Cambridge, Massachusetts, and afterward a prebend of Finsbury, England. Several others engaged in this discussion, among whom was Archbishop Secher, a warm friend of the colonial church.

The efforts to procure an episcopate continued to prove unsuccessful as before. Yet so obviously was

it necessary, that, notwithstanding repeated discouragements, within ten years after the controversy with Mayhew, another attempt was made, in the course of which the Rev. Dr. Chandler, of New Jersey, appealed to the publick in favour of this great object. But the times were unpropitious. Political difficulties had arisen between the colonies and the mother-country; and many of those who had previously desired an American episcopacy, now feared lest it should be made an instrument of accomplishing the designs of Great Britain. Some of the clergy themselves were not free from this apprehension, and four ministers of the establishment in Virginia actually protested against Dr. Chandler's plan, and received for their protest the thanks of their colonial government. The war of the revolution commenced shortly afterward, and amid the clash of civil strife, the whole subject was for a time forgotten. Missionary.

NATURAL HISTORY.

THE WILD-TURKEY.

(Meleagris Gallapavo.)

This bird, on account of its great size and beauty, its value as a rich and delicate article of food, and the circumstance of its being the origin of the domestick race, which is now dispersed over America and Europe, is one of the most interesting to be found in the United States.

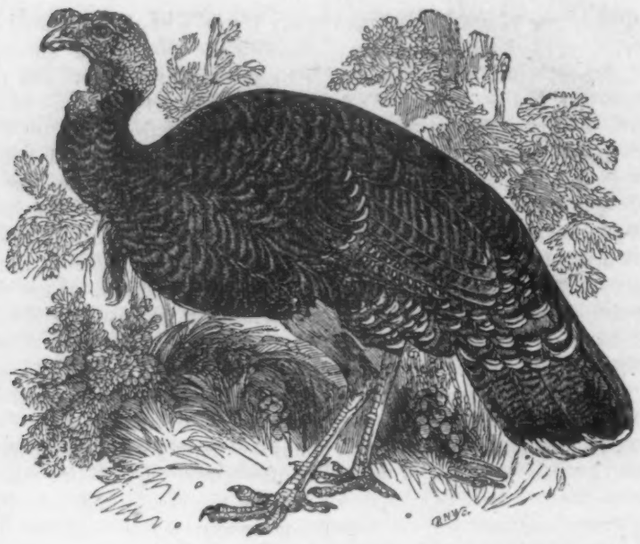
When fully grown, the wild-turkey measures nearly four feet in length, and more than five in the expanse of its wings. The head of the male, which is very small in proportion to its body, is covered with a naked bluish skin, which is continued over the upper half of its neck. On this skin are placed a number of wart-like elevations, red on the upper portion and whitish below, interspersed with a few scattered blackish hairs. On the under part of the neck the skin is flaccid and membranous, and extends downward in the shape of large wattles. The lower part of the neck, at is junction with the breast, is ornamented with a singular tuft of black rigid hairs, separating themselves from the feathers, and reaching as much as nine inches in length. The feathers of the body are long and truncated, and, generally speaking, may each be subdivided into four parts. Their base is formed by a light fuliginous down, which is followed by a dusky portion. This again is succeeded by a broad shining metalick band, changing to copper-colour or bronze, to violet or purple, according to the incidence of the light; while the tip is formed by a narrow black velvety band, which last is wanting on the neck and breast. From this disposition of the colours results a most beautiful changeable metallick gloss over the whole body of the bird, which, however, is less marked on the lower part of the back and tail-coverts.

The female is considerably smaller; her legs are less robust, the latter having her head and neck covered by short feathers of a dirty-gray. Those of the back of the neck have brownish tips, producing a longitudinal band on that part. The fasciculus on the breast is not present as early as in the small and in the barren hens, and does not appear till they are very old. The experienced hunter knows them at once in the flock, and shoots them by preference. The prevailing tinge of the plumage is dusky-gray; and all the parts, without exception, are duller than those of the male.

The wild-turkey has been found native from the northwestern territory of the United States to the isthmus of Panama. Towards the north, Canada appears to be the limit of its range; but from this country, as well as from the more densely-peopled parts of the Union, where it was once extremely abundant, it is gradually disappearing before the encroachments of man. To the west, the Rocky mountains seem to form a barrier that it has never passed, if indeed it has reached them; but the wooded districts of the western states are still plentifully supplied with this valuable game, which there forms an important part of the subsistence of the hunter and the traveller. In the northeastern states it is now become extremely rare; it is still occasionally found in mountainous parts of New Jersey and Pennsylvania, and in Maryland; while in the south, Florida, Georgia, and the Carolinas, where a century ago it was most plentiful, there is still a small supply.

Many wonderful stories have been told of the immense size which this bird attains; and turkeys of sixty pounds and upwards in weight are spoken of as not uncommon. The author of the article in the continuation of Wilson's ornithology, on the contrary, states the weight of a hen to average about nine pounds, and that of a male-bird fifteen or twenty. He adds, however, that males of thirty pounds are not very rare, and that he has ascertained the existence of some weighing forty. Beyond this he is not disposed to go, and he considers those relations in which a greater weight is mentioned as fabulous. He quotes Mr. Audubon's authority for having shot barren hens, in strawberry time, weighing thirteen pounds, and for having seen a male in the Louisville market that weighed thirty-six, and had a pectoral tuft of more than a foot in length. The specimen figured by M. Bonaparte weighed twenty-two pounds, and was killed during the lean season.

The wild-turkeys do not confine themselves to any particular food. They eat maize, all sorts of berries, fruits, grass, and beetles; and even tadpoles, young frogs, and lizards, are occasionally found in their crops. Where the pecan-nut is plentiful, they prefer it to any other kind of nutriment; but their more general predilection is in favour of the acorn, on which they rapidly fatten. When an unusually profuse crop of acorns is produced in a particular section of the country which they inhabit, great numbers of turkeys are enticed from their ordinary haunts in the surrounding districts. About the beginning of October, while the mast still remains on the trees, they assemble in flocks, and direct their course to the rich bottom-lands; and so constant is their appearance, that the season of this irruption is known to the Indians by the name of the turkey-month. At this time the males, which are usually termed gobblers, associate in parties numbering from ten to a hundred; while the females either move about singly with their young, then nearly two-thirds grown, or, in company with other females and their families, form troops of seventy or eighty individuals. The object of this arrangement is to avoid



[Wild Turkey.]

coming in contact with the old males, who, whenever opportunity offers, attack and destroy the young by repeated blows upon the scull. They travel, however, in the same direction, and on foot, unless when diverted by circumstances from their usual course.

When they arrive at a river, they select the highest eminences on its bank, and there remain for a day or more, the males gobbling obstreperously, and strutting with more than usual importance, when the females, and even the young, assume somewhat of the pompous air of the males. The attitudes and note of the domestick-turkey, when excited, must be sufficiently familiar to our readers to render superfluous any more particular description of this curious display. At length, when fully recruited and animated for the task, they mount, altogether, to the tops of the highest trees, and at a signal from the leader, wing their way towards the opposite shore. The old and fat birds cross without difficulty, even if the river should be a mile in breadth; but many of the young, especially if the banks are steep, fall into and perish in the stream. When the main body has reached the other side, they ramble about for some time, without any apparent unanimity of purpose; and in this forlorn state many of them fall victims to the hunters, although at the season when they are least valuable. On their arrival in the land of abundance, they disperse themselves in small flocks, composed of individuals of all ages and of both sexes, intermingled, and devour the mast as they advance. After these long journeys, which are generally concluded about the middle of November, they become so familiar as to venture even into the farmyards in search of food; and great numbers are killed by the inhabitants, who preserve them in a frozen state, in order to transport them to a distant market.

About the middle of April, when the weather is dry, the female selects a proper place to deposite her eggs, secure from the encroachment of water, and, as far as possible, concealed from the watchful eye of the crow, the most destructive enemy of the unhatched brood. The nest is composed only of a few dried leaves, placed on the ground, either on a dry ridge, in the fallen top of a dried leafy tree, under a thicket, or by the side of a log. In this receptacle the eggs, which are whitish, spotted with reddish-brown, like those of the domestick bird, are deposited, sometimes to the number of twenty, but more usually from nine to fifteen. The female always approaches her nest with great caution, and conceals it so artfully with dry leaves that it is extremely difficult to discover it during her absence. When laying or sitting, she is not readily driven from her post, which she seldom quits on account of its having been discovered by man; but should a snake or any other animal suck one of the eggs, she abandons them altogether. Several females sometimes associate, deposite their eggs in the same nest, and rear their broods together. In such cases, the nest is constantly guarded by one of the party, so that no crow, raven, or even polecat, dare approach it. When the eggs are near hatching, the mother will not forsake them while life remains.

On first quitting the shell, the young are covered only with a soft, delicate, hairy down, which affords them no protection against humidity. Hence, after a very rainy season, wild-turkeys are always scarce, because, when completely wetted, the young rarely survive. At the expiration of about a fortnight they quit the ground, on which they had previously reposed at night under the female, and follow her to some low branch of a tree, where they nestle under her broadly-curved wings. The time then approaches in which they seek the open ground during the day, in search of strawberries, and afterward of dewberrys, blackberries, and grasshoppers. After this, the young birds grow rapidly, and by the month of August, when several broods flock together, and are led by their mothers to the forest, they are quite able to secure themselves from the attacks of wolves, foxes, lynxes, and even panthers, by rising quickly from the ground, and reaching with ease the upper limbs of the tallest trees. These animals, especially the lynxes, together with the larger birds of prey, the

hawks, the eagles, and the owls, are among their most deadly enemies.

In regard to taking the wild-turkey, Audubon remarks as follows, in his magnificent work on the birds of America:—"During spring, turkeys are *called*, as it is termed, by drawing the air in a particular way through one of the second-joint bones of a wing of these birds, which produces a sound resembling the voice of the female, on hearing which, the male comes up, and is shot. But the most common method of procuring wild-turkeys, is by means of *pens*. These are are placed in parts of the woods where turkeys have been frequently observed to roost, and are constructed in the following manner:—Young trees of four or five inches in diameter are cut down, and divided into pieces of the length of twelve or fourteen feet. Two of these are laid on the ground parallel to each other, at a distance of ten or twelve feet; two other pieces are laid across the ends of these, at right angles to them; and in this manner successive layers are added, until the fabrick is raised to the height of about four feet. It is then covered with similar pieces of wood, placed three or four inches apart, and loaded with one or two heavy logs to render the whole firm. This done, a trench, about eighteen inches in depth and width, is cut under one side of the cage, into which it opens slantingly and rather abruptly. It is continued on its outside to some distance, so as gradually to attain the level of the surrounding ground. Over the part of this trench within the pen, and close to the wall, some sticks are placed so as to form a kind of bridge about a foot in breadth. The trap being now finished, the owner places a quantity of Indian corn in its centre, as well as in the trench, and as he walks off, drops here and there a few grains in the woods, sometimes to the distance of a mile. This is repeated at every visit to the traps, after the turkeys have found it. Sometimes two trenches are cut, in which case the trenches open on opposite sides of the trap, and are both strewn with corn. No sooner has a turkey discovered the train of corn, than it communicates the circumstance to the flock by a cluck, when all of them come up, scratching for the grains scattered about, and at length come upon the trench which they follow, squeezing themselves one after another through the passage under the bridge. In this manner the whole flock sometimes enter, but more commonly six or seven only, as they are alarmed by the least noise, even by the cracking of a tree in frosty weather. Those within having gorged themselves, raise their heads and try to force their way through the top or sides of the pen, passing and repassing on the bridge, but never for a moment looking down or attempting to scratch through the passage by which they entered. Thus they remain until the owner of the trap arriving, closes the trench, and secures his captives. I have heard of eighteen turkeys having been caught in this manner at a single visit to the trap. I have had many of these traps myself, but never found more than seven in them at a time. One winter I kept an account of the produce of a pen which I visited daily, and found that seventy-six had been caught in it, in about two months."

Mr. Audubon relates many interesting anecdotes of the wild-turkey, among them the following:—"While at Henderson, on the Ohio," says he, "I had among other wild-birds, a fine male turkey, which had been reared, from its earliest youth, under my care; it having been caught by me when probably not more than two or three days old. It became so tame that it would follow any person who called it, and was the favourite of the little village. Yet it would never roost with the tame turkeys, but regularly betook itself, at night, to the roof of the house, where it remained until dawn. When two years old, it began to fly to the woods, where it remained for a considerable part of the day, and returned to the enclosure as night approached. It continued this practice until the following spring, when I saw it several times fly from its roosting-place to the top of a high cotton-tree, on the bank of the Ohio, from which, after resting a little, it could sail to the opposite shore, the river being there nearly half a mile wide, and return towards night. One morning, I saw it fly off at a very early hour to the woods, in another direction, but took no particular notice of the circumstance. Several days elapsed, but the bird did not return. I was going towards some lakes near Green river, to shoot, when, having walked about five miles, I saw a fine large gobbler cross the path before me, moving leizurely along. Turkeys being then in prime condition for the table, I ordered my dog to chase it and put it up. The animal went off with great rapidity, and as it approached the turkey, I saw, with great surprise, that the latter paid little attention. Juno was on the point of seizing it, when she suddenly stopped, and turned her head towards me. I hastened to them, but you may easily conceive my surprise when I saw my own favourite bird, and discovered that it had recognised the dog, and would not fly from it, although the sight of a strange dog would have caused it to run. A friend of mine happening to be in search of a wounded deer, took the bird on his saddle before him, and carried it home for me. The following spring it was accidentally shot, having been taken for a wild bird, and brought to me on being recognised by the red ribbon which it had around its neck. Pray, reader, by what word will you designate the recognition made by my favorite turkey of a dog, which had long been associated with it in the yard and grounds? was it the result of instinct, or of reason; an unconsciously-revived impression, or the act of an intelligent mind?"

MOVING POWERS.

The original forces which produce motion, and which have been denominated moving powers, are of various kinds, depending on the natural properties of bodies. Gravitation, or weight, is an extensively-acting power, affecting matter in all its different forms, and affording the means of originating motion for many useful purposes. By the proper application of weight, the equable motion of wheel-work is maintained, as in a common clock; and the same power, differently adapted, is made to act by percussion, in pile-driving, and numerous other operations. Currents of water owe their velocity to the weight of the descending liquid, yielding a kind of moving power, on which depends the effective force of water-wheels, and other hydraulick engines.

Elasticity is another property of matter which gives energy to various mechanical agents. Elastick

metals, as steel, manufactured into springs, are used in the construction of watches or chronometers; and the contractile force of springs is employed for many other purposes, as in roasting-jacks, and weighing-machines. Liquids, though compressed with difficulty, display a high degree of power when thus treated; and machines of vast energy have been invented, the effect of which depends on the expansive or elastick force of compressed water. The elasticity of air is likewise an abundant source of moving power. Steam-engines, such as were used in the early part of the last century, were made to act through atmospherick pressure, arising from the joint influence of the weight and elasticity of the air; but since the vast improvements in machines of this description, in consequence of the researches of Fulton and others, steam or elastick vapour is employed as the sole moving power, and so managed as to produce effects far beyond those of the old atmospherick engines.

Heat must be regarded as a moving power, the efficacy of which depends on its tendency to dilate different kinds of matter. It also converts solid bodies to the liquid state, and liquids, under its influence, are changed into vapours or gases. Hence, indeed, is to be explained the operation of the steam-engine, in which alternating motion is produced by the expansive force of steam, or water raised to the state of vapour by means of heat. Combustion is a chemical process often excited by heat, and during the progress of which, heat is always developed; and from this source is derived moving power of vast intensity, as occurs in the discharge of shot or balls from fire-arms, through the explosion of gunpowder. In this case the moving power arises from the sudden expansion of gases formed by the combustion of solid matter; but engines have recently been constructed, the action of which depends on the formation of a partial vacuum, by the inflammation of oxygen and hydrogen gases, in close vessels, and the consequent production of water.

Machines may be set in motion by means of electricity, galvanism, or magnetism; and forces, which have been chiefly regarded as objects of curiosity, may be extensively applied to useful and important purposes. In a French periodical publication, some account is given of an electrick clock, invented by M. Bianchi of Verona. The timekeeper has neither weight nor spring, instead of which, the constant vibration of the pendulum is maintained by the impulse of electricity, which it receives by moving between two galvanick piles, the ball or bob being furnished with a conductor, which, in its oscillations, approaching either pile, alternately, is repelled by the discharge of the electrick fluid; and the regular action of the whole of the machinery is kept up.

These cursory observations will afford some general ideas of the nature and extent of the moving powers originating from the influence of elastick fluids, heat, and electricity; but the further discussion of these topicks must be referred to the subsequent portion of this work, where the phenomena connected with these subjects will be distinctly noticed. There are, however, besides those moving powers, other mechanical agents, the effects of which arise from the vital energy of animated beings; and, concerning these, some details may here be properly introduced.

The application of the natural strength of man must have preceded the employment of all other moving powers; and we know, from history, that ever since a very remote period, brute animals have likewise been rendered subservient to the purposes of art and industry. The employment of oxen and horses in the labours of the field must have originated in the earliest ages; and the art of training beasts of different kinds to exert their strength for the benefit of man, has been known and practised among almost all nations, except those in the very rudest state of society.

The mechanical effects produced by the muscular exertions of living beings cannot be subjected to calculation on precisely the same principles as the moving power of a weighing-machine or a steam-engine; nor even can they be estimated with as much precision as the efficient power of a windmill or water-wheel; but there are modes of obtaining data whence to determine the value of animal strength, as a mechanical agent, which may serve to indicate the comparative product of labour from that and other sources, and enable us to discover their relative importance for any given purpose.

The usual method of computing the mechanical value or efficiency of labour is from the weight it is capable of elevating, to a certain height, in a given time; the product of these three measures, (weight, space, and time,) denoting the absolute quantity of performance. But these measures have obviously a mutual relation which will affect the result; for great speed will occasion a waste of force, and shorten the period during which it can be exerted. It was computed by Daniel Bernoulli and Desaguliers that a man could raise two millions of pounds avoirdupois one foot in a day. And some writers have calculated that a labourer will lift ten pounds to a height of ten feet every second, and continue to work at that rate during ten hours in a day, raising, in that time, 3,600,000 pounds. But these estimates are certainly incorrect, and appear to have been founded on inferences drawn from momentary exertions under favourable circumstances. Smeaton states that six good labourers would raise 21,141 cubick feet of sea-water to the height of four feet in four hours; so that they would raise about 540,000 pounds each, to the height of ten feet in twenty-four hours.

Coulomb has furnished some of the most exact and varied observations on the measure of human labour. A man will climb a staircase from seventy to one hundred feet high, at the rate of forty-five feet in a minute; and hence, reckoning the man's weight at one hundred and fifty-five pounds, the animal exertion, for one minute, would be 6975, and would amount to 4,185,000, if continued for ten hours. But such exercise would be too violent to be thus continued. A person might ascend a rock five hundred feet high by a ladder-stairs in twenty minutes, or at the rate of twenty-five feet in a minute: his efforts are thus already impaired, and the performance reduced to only 3875 in a minute.

But, with the encumbrance of a load, the quantity of action must be yet more remarkably diminished. A porter, weighing one hundred and forty pounds, who could climb a staircase forty feet high two hundred and sixty-six times in a day, was able to carry up only sixty-six loads of fire wood, each weighing

one hundred and sixty-three pounds. In the former case, his daily performance was very nearly 1,500,000; while in the latter it amounted to only 808,000. The quantity of permanent effect in the latter case, therefore, was only about 700,000, or scarcely half the labour exerted in mere climbing. A man, drawing water from a well by means of a double bucket, may raise thirty-six pounds one hundred and twenty times a day, from a depth of one hundred and twenty feet, the total effect being 518,400. A skilful labourer, working in the field with a large hoe, produces an effect equal to 728,000. When the agency of a winch is employed in turning a machine, the performance is still greater, amounting to 845,000.

The effective force of human exertion differs according to the manner in which it is applied. From some experiments made by Mr. Buchanan, it was ascertained that the labour of a man employed in working a pump, turning a winch, ringing a bell, and rowing a boat, might be represented respectively by the numbers 100, 167, 227, and 248. Hence it appears that the act of rowing is an advantageous method of applying human strength. The Greek seamen in the Dardanelles are said to excel most others in skill and vigour; and the Chinese, who use both their hands and feet, surpass all other people in giving impulse to boats by sculling.

A London porter is accustomed to carry a burden of two hundred pounds at the rate of three miles an hour; and a couple of Irish chairmen will walk four miles an hour, with a load of three hundred pounds. But these exertions are by no means equivalent to those of the sinewy porters in Turkey, the Levant, and other parts bordering on the Mediterranean. At Constantinople, an Albanian will carry eight or nine hundred pounds on his back, stooping forward, and assisting his steps by a short staff. At Marseilles, four porters commonly carry the immense load of nearly two tuns, by means of soft hods passing over their heads, and resting on their shoulders, with the ends of the poles from which the goods are suspended. The most extraordinary instances of muscular exertion in the carriage of burdens are those exhibited by the cargueros or carriers, a class of men in the mountainous parts of Peru, who are employed in carrying travellers. Humboldt, in relating the circumstances of his descent on the western side of the Cordillera of the Andes, gives some account of the cargueros. It is as usual in that country for people to talk of going a journey on a man's back, as it is here to speak of going on horseback. No humiliating idea is attached to the occupation of a man-carrier; and those who engage in it are not Indians, but Mulattoes, and sometimes whites. The usual load of a carguero is from one hundred and sixty to one hundred and eighty pounds weight, and those who are very strong will carry as much as two hundred and ten pounds. Notwithstanding the enormous fatigue to which these men are exposed, carrying such loads for eight or nine hours a day, over a mountainous country; though their backs are often as raw as those of beasts of burden; though travellers have sometimes the cruelty to leave them in the forests when they fall sick, and though their scanty earnings, during a journey of fifteen or even thirty days, are not more than from twelve to fifteen dollars, yet the employment of a carguero is eagerly embraced by all the robust young men who live at the foot of the mountain.

The different races of mankind display much diversity of muscular strength; though in all cases much must depend on the constitution and habits of the individual. M. Peron, in his "Voyage de Decouvertes aux Terres Australes, fait par ordre de Gouvernment [Francaise] pendant les Années 1800—4," has stated the results of some interesting experiments which he made to discover the relative mechanical power of individuals of different nations. For that purpose, he used an instrument called a dynamometer, which, by the application of spiral springs to a graduated scale, afforded the means of estimating the forces exerted by the persons who were the subjects of his experiments. He collected by this method a number of facts, which he conceived sufficient to enable him to deduce from them the medium forces or powers of exertion of the inhabitants of the island of Timor, of New Holland, and of Van Dieman's Land, and to compare them with those of the English and the French. The following is the order of arrangement, commencing with the weakest: Manual force—Van Dieman's Land, New Holland, Timor, French, English. The proportion between the extremes is nearly as five to seven.

The labour of a horse in a day is usually reckoned equal to that of five men; but then the horse works only eight hours, while a man can easily continue his exertions for ten. Horses display greater power in carrying than drawing; yet an active walker will beat them in a long journey. Their effective force in traction seldom exceeds one hundred and forty-four pounds, but they are able to cary six times that weight The pack-horses in the West Riding of Yorkshire are accustomed to convey loads of four hundred and twenty pounds over a hilly country; and in many parts of England, the mill-horse will carry the burden of even nine hundred and ten pounds, for a short distance. The most advantageous load for a horse must be that with which his speed will be greatest in proportion to the weigh carried. Thus, if the greatest speed at which a horse can travel unloaded be fifteen miles an hour, and the greatest weight he could sustain without moving be supposed to be divided into two hundred and twenty-five parts, then his labour will be most effective when, loaded with one hundred of those parts, he travels at the rate of five miles an hour. The common estimate of horse-power, adopted in calculating the effect of steam-engines, is wholly hypothetical. It is stated to be that which will raise a weight of thirty-three thousand pounds the height of one foot in a minute of time, equal to raising about ninety pounds four miles in an hour. Another estimate reduces the weight to twenty-two thousand pounds raised one foot in a minute, equivalent to one hundred pounds two and a half miles an hour. This mode of calculation seems to have been introduced as a matter of convenience, when the use of horses in mills and factories was superseded by that of steam-engines; and must have been adopted in order to show the superiority of steam-engines over horses, according to the most exaggerated statement of the power of the latter.

The ass, though far inferiour to the horse in strength, is yet a most serviceable beast of burden to the poor,

as he is easily maintained at little cost. In England, an ass will carry about two hundred and twenty pounds twenty miles a day; but in warmer climates, where he becomes a larger and finer animal, he may be made to trot or amble briskly with a load of one hundred and fifty pounds. Mules are much used as beasts of burden in Spain, South America, and some other parts of the world. In the West Indies a mule will work two hours out of about eighteen, with a force of about one hundred and fifty pounds, walking three feet in one second.

The Kamtschatdales, Esquimaux, and some other northern people, employ teams of dogs to draw sledges over the frozen surface of snow. They are harnessed in a line, sometimes to the number of eight or ten, and they perform their work with speed, steadiness, and perseverance. Captain Lyon, when he visited the Arctick regions, had nine of these dogs, who dragged sixteen hundred and ten pounds a mile in nine minutes, and worked in this manner during seven or eight hours in a day. Such dogs will draw a heavy sledge to a considerable distance at the rate of thirteen or fourteen miles an hour; and they will travel long journeys at half that rate, each of them pulling the weight of one hundred and thirty pounds.

The elephant was used by the Romans for the purposes of war, as it is still in India, and other oriental countries. His strength is reckoned equivalent to that of six horses, but the quantity of food he consumes is much greater in proportion. An elephant will carry a load of three or four thousand pounds; his ordinary pace is equal to that of a slow-trotting horse; he travels easily forty or fifty miles a day; and has been known to go a hundred and ten miles in that time.

The camel is a most valuable beast of burden on the sandy plains on both sides of the Red sea; for traversing which, the animal might seem to have been expressly created. Some camels are able to carry ten or twelve hundred pounds; others not more than six or seven hundred, and with such loads they will walk at the rate of two and a half miles an hour, and travel regularly about thirty miles a day, for many days together, being able to subsist eight or nine days without water, and with a very scanty supply of the coarsest provender.

The dromedary is a smaller species of camel, chiefly used for riding, being capable of travelling with greater speed than the larger camel, but not equally proof against exhaustion. The best Arabian camel or dromedary, after three whole days abstinence from water, shows manifest symptoms of great distress; though it might possibly be able to travel five days without drinking; which, however, can seldom or never be required, as it appears that, in the different routes across the desert of Arabia, there are wells not more at the utmost than three and a half days' journey from each other. Exaggerated statements have been given of the speed of this animal; the most extraordinary performance of which the traveller Burkhardt ever obtained authentick information having been a journey of one hundred and fifteen miles in eleven hours, including two passages across the Nile in a ferry-boat, requiring twenty minutes each. The same traveller conjectured that the animal might have travelled two hundred miles in twenty-four hours. A Bedouin Arab has been known to ride express from Cairo to Mecca, seven hundred and fifty miles upon a dromedary, in five days. Twelve miles an hour is the utmost trotting-pace of the smaller camel; and though it may gallop nine miles in half an hour, it cannot continue for a longer time that unnatural pace. It ambles easily at the rate of five and a half miles an hour; and if fed properly every evening, or even once in two days, it will continue to travel at that rate five or six days.

The lama, or guanaco, is a kind of dwarf-camel, which is a native of Peru; and it was the only beast of burden employed by the ancient inhabitants of that country. It is easily tamed, feeds on moss, and being admirably adapted for traversing its usual haunts, the lofty Andes, it is still employed to carry goods. The strongest of these animals will travel, with a load of from one hundred and fifty to two hundred pounds, about fifteen miles a day over the roughest mountains. There is a smaller animal of a similar nature, called the pacos, which is also now used by the Peruvians in transporting merchandise over the mountains; but which will carry only from fifty to seventy pounds.

Oxen have been, in many countries, employed in the labours of husbandry, instead of horses. They are, however, inferiour, not only on account of the softness of their hoofs, which renders them unfit for any except field-work, but likewise as being comparatively unprofitable. A team of oxen capable of ploughing as much land as a pair of horses will require for support the produce of one-fourth more land, after allowing for the increase of weight and value.

In some parts of Europe the goat is made to labour, by treading a wheel to raise ore or water from a mine. In England they are sometimes harnessed to miniature carriages for children; and in Holland, the children of the rich burghers are thus drawn by goats, gayly caparisoned, and yoked to light chariots. The reindeer of Lapland is a most servicable beast of draught in the frozen regions of the north. Two of these deer, harnessed to a sledge for one person, will run fifty or sixty miles on the stretch; and they have been known to travel thus one hundred and twelve miles in the course of a day.

PLANTS OF NEW HOLLAND.

The New Holland Lily (*Doryanthes excelsa*) is one of the most stately of the vegetable kingdom. It grows to the height of twenty or twenty-five feet, bearing on its crown blossoms of the richest crimson, each six inches in diameter, from which beautiful birds sip a delicious honey. The leaves are very numerous, sword-shaped, and sometimes six feet long. The Pitcher-plant (*Cephelotus follicularis*) is remarkable for having among its leaves *ascidia*, or pitcher-shaped vessels, holding several ounces of a slightly-sweet watery fluid; the lid of the pitcher is sometimes found accurately closed, at other times it has an erect position, leaving the vessel quite open, probably to receive rain or dew for the nourishment of the plant. Of the genus *Urtica*, there are numerous species: and several specimens of the extraordinary nettle-tree are twenty feet high, while its leaves are so highly stimulating as to blister severely on the slightest touch.

[Falls of Montmorency.]

AMERICAN LANDSCAPE.

Among the many attractions which are presented to the traveller in America, the different falls are not the least interesting. The falls of Niagara are celebrated throughout the civilized world, as one of the grandest and the most sublime spectacles to be found in the universe. Among falls of a secondary character, those represented in the illustration, the falls of Montmorency, deserve notice; and although the scenery around them is by no means as impressive as at Niagara, yet the true lover of nature—he who looks with the eye of an enthusiast upon the sublime and the beautiful, as it came from the hand of the Creator—can spend many an hour of pleasure and delight, in watching the Montmorency, as it comes rushing and thundering down the steep precipice, sending forth its rainbows of light spray, in token of joy that the rough way is passed over, and that its waters may afterward roll on in peace and quiet.

The falls of Montmorency are situated in the river of the same name, distant from six to seven miles below Quebeck. The river shoots in a sheet over a vast precipice; its breadth at the top of the cascade is about one hundred feet; its perpendicular descent is about two hundred and forty feet. The banks on each side of it are smooth and precipitous; their summits are crowned with trees, while a mill is perched high upon the verge of the fall.

RESOURCES OF ILLINOIS.

A coarse freestone, much used in building, is dug from quarries near Alton, on the Mississippi, where it exists in large bodies. Large masses of rock, of granite formation, and roundish in form, are scattered over the surface of the prairies. They are usually called by the inhabitants "lost rocks." They weigh from one thousand to ten or twelve thousand pounds—are entirely detached, and are frequently found at the distance of several miles from any quarry. But there never has been a quarry of granite discovered in the state. These stones are denominated in mineralogy, *boulders*. The fact of their existence in several parts of the state; that they are a species of granite; that they are usually found on the surface, or are partially imbedded in the soil of the prairies, which is considered, by some, of diluvial formation; have given rise to a question of difficult solution concerning their history.

We have in part anticipated the class of vegetable productions, by a notice of the principal trees and shrubs that exist in this state. Black-walnut is extensively used for building materials and cabinet work, and is susceptible of a fine polish. It appears to be a general substitute for the pine in the uses of household furniture.

Grape-vines are found indigenous and abundant in most parts of the state, yielding grapes which might be profitably made into excellent wine.—Foreign vines are easily cultivated. But the indigenous vines are found in every variety of soil; twined with every little grove in the prairies and barrens; and curling themselves to the tops of the loftiest trees that rise in the beauty and luxuriance of their growth from the rich soil of the bottoms. In the infancy of settlement, the French made wine in such abundant quantities, as to make it an article of export to their native country, itself celebrated for its "blushing vinehills." But the proper authorities of the old kingdom prohibited the introduction of wine from Illinois, as it might injure the sale of their own staple article. It is stated in one of the magazines of the country, that so prolifick are the vines, one gentleman made twenty-seven barrels of wine with very little labour, in his own immediate neighbourhood. And as it will appear, in a continued consideration of this state, that corn is one of its important productions, we have here the old scriptural standard of prosperity and luxury—a country abounding with "corn and wine." Chicago American.

Pride, like the magnet, constantly points to one object, self; but unlike the magnet, it has no attractive pole, but at all points repels.

[Fac-Simile of Dighton Rock.]

AMERICAN ANTIQUITIES.

The cut above represents an inscription found upon a rock at Dighton, Massachusetts, which has given rise to much speculation, and to many theories, all of which, however, are more or less objectionable. The following remarks, in regard to it, are from the Philadelphia Saturday Courier. The writer, alluding to a previous communication, says:—

Then the writer refers to "Dighton Rock," and believes the Phœnician mariners inscribed thereon their names and epitaphs. The incorrectness of this opinion will, I think, be seen by referring to the accompanying copy of the inscription, which I send you for the double purpose of refuting the said conclusion, and also to give an opportunity for the wisdom of the age to act upon it. I believe it has not been extensively before the publick, at least not for many years, and should you give it a place in your valuable paper, some of your numerous readers might be able to favour us with an explanation.

The "Dighton Rock" lies upon the east side of Taunton river, between high and low water-marks, so that it is covered and exposed at every ebb and flow of the tide. The fac-simile was taken by Mr. Job Gardner, a self-taught artist, well known to the publick as a manufacturer of globes, formerly of this town, but for the last years of his life a resident of Dighton: his method in taking it was to cover the face of the rock with paper, and draw lines over the vacancies: then, with a graduated machine, constructed by himself, he drew and cut it (much reduced in size) upon stone, from which this impression was taken.

The writer of this has visited this rock, and believes the correctness of the fac-simile may be depended upon.

The inscription presents four parts or divisions, and has no appearance of being a mere record of names and epitaphs, but is evidently intended to record some important event, probably a combat.

The first part, commencing on the left, is an Indian armed with bow and arrow, and may represent a body of armed Indians.

The second appears to be all hieroglyphick, and probably its definition involves the greater part of the secret, though it doubtless refers more particularly to the first part.

The third division is evidently a vessel with bows, stern, quarter-deck, rudder, and cable and anchor; the triangle on the starboard-quarter, I believe, denotes in hieroglyphick language, fighting, or a place to fight from, a fort or battery; there are several double and single triangles in the second part.

In the fourth we see two human figures, evidently differing from that in the first, without bows and arrows; they appear to represent the party connected with the vessel.

The first question that arises is, who were the authors—Asiaticks, Indians, or Phœnicians? The skill displayed in drawing the Indian on the left, and the great falling off when attempting to portray a stranger, with the landsman-like shape of the vessel, is a reason of some weight for ascribing the merit of the work to the Indians.

With no knowledge of hieroglyphicks, I have merely offered a few ideas respecting the inscription, such as would naturally arise in any one upon viewing it. Respectfully, yours, G. M.

Warren, R. I.

A NAVAL REMINISCENCE.

In the year 1804, when Preble, as commodore of the American squadron in the Mediterranean, was gaining glory before Tripoli, alike for himself, his officers and crews, and for his country, lieutenant commandant Richard Somers had command, under him, of the Nautilus, a schooner of fourteen guns.

During the several fights which had previously occurred with the enemy, this officer had shown great bravery as commander of gunboat number one; and now suggested to the commodore, that a happy result might possibly be obtained by converting the ketch Intrepid, a captured craft of about seventy-five tuns—the identical vessel with which the gallant Decatur had boarded, recaptured, and burned the frigate Philadelphia—into a fireship, and sending her into the harbour under the walls of the bashaw's castle, in direct contact with the entire marine force of the Tripolitans.

This daring and highly dangerous enterprise being determined upon, Somers, with whom it had originated, received the orders, to which he was thus entitled, to conduct it; and the necessary prepara-

tions were promptly made by him. Fifteen thousand pounds of powder were first placed loosely in the hold of the ketch, and upon this, two hundred and fifty thirteen-inch fusiled shells, with a train attached from the cabin and fore-peak. Only one officer, the talented and lamented Henry Wadsworth, brother of the present Commodore Wadsworth, was to accompany him, and four volunteer seamen were to compose his crew.

All things were now in readiness, except the selection of the men, for it came to this, at last, every man on board the Nautilus having volunteered for the service. This done, it was determined without delay to attempt the enterprise, and to succeed in it or perish.

Two nights successively did the Intrepid move; but owing to light and baffling winds, nothing could be accomplished. These failures, and an unusual movement in the harbour, after dark, on the third night, led Somers to believe that the suspicions of the enemy had been excited, and that they were on the look-out. It was the general impression that their powder was nearly exhausted; and as so large a quantity as was on board the ketch, if captured, would greatly tend to protract the contest, before setting off, he addressed his crew upon the subject, telling them "that no man need accompany him who had not come to the resolution to blow himself up, rather than be captured; and that such was fully his own determination!" Three cheers was the only reply. The gallant crew rose, as a single man, with the resolution of yielding up their lives, sooner than surrender to their enemies; while each stepped forth, and begged as a *favour*, that he might be permitted to *apply the match!* It was a glorious moment, and made an impression on the hearts of those witnessing it, never to be forgotten.

All then took leave of every officer and of every man, in the most cheerful manner, with a shake of the hand, as if they already knew that their fate was doomed; and one and another, as they passed over the side to take their post on board the ketch, might be heard, in their own peculiar manner, to cry out, "I say, Sam Jones, I leave you my blue jacket and duck trowsers, stowed away in my bag;" and "Bill Curtis, you may have the tarpaulin hat, and guernsey-frock, and them petticoat-trowsers I got in Malta—and mind, boys, when you get home, give a good account of us!" In like manner did each thus make his oral will, to which the writer was witness, and which "*last will and testament*" he caused to be executed to the very letter.

It was about nine o'clock, on the night of the 4th of September, 1814, that this third and last attempt was made. The Nautilus had been ordered to follow the Intrepid closely in, to pick up and bring out her boat's crew, in case they should succeed in the exploit. Hence, though it was very dark, we never lost sight of her, as I had been directed by the first lieutenant, the late gallant Washington Reed, who commanded in the absence of Somers, to keep constant watch of her for this purpose with a night-glass.

At the end of an hour, about ten o'clock, P. M., while I was engaged in this duty, the awful explosion took place. For a moment the flash illuminated the whole heavens around, while the terifick concussion shook every thing far and near. Then all was hushed again, and every object veiled in a darkness of double gloom. On board the Nautilus, the silence of death seemed to pervade the entire crew; but quickly the din of kettle-drums beating to arms, with the noise of confusion and alarm, was heard from the inhabitants on shore. To aid in the escape of the boat, an order was now given by Reed, to "*show a light,*" upon the appearance of which, hundreds of shot, from an equal number of guns, of heavy calibre, from the batteries near, came rattling over and around us. But we heeded them not: one thought and one feeling alone had possession of our souls—the preservation of Somers and his crew!

As moment after moment passed by, without bringing with it the preconcerted signal from the boat, the anxiety on board became intense; and the men, with lighted lanterns, hung themselves over the sides of the vessel till their heads almost touched the water, a position in which an object on its surface can be seen farthest in a dark night, with the hope of discovering something which would give assurance of its safety. Still no boat came, and no signal was given; and the unwelcome conclusion was at last forced upon us, that the fearful alternative of blowing themselves up rather than be captured, so bravely determined upon at the outset of the enterprise, had been as bravely put in execution. The fact that the Intrepid, at the time of the explosion, had not proceeded as far into the harbour, by several hundred yards, as it was the intention of Somers to carry her, before setting her on fire, confirmed us in this apprehension; still, we lingered on the spot till broad daylight, though we lingered in vain, in the hope that some one, at least, of the number, might yet be rescued by us from a floating plank or spar, to tell the tale of his companions' fate.

To our astonishment, we learned next day that Lieutenant Israel, a gallant youth, who had been sent with orders from Commodore Preble to Somers, after he was under way in the ketch, had accompanied him in the expedition, and had shared his destiny.

Such was the end of the noble fellows, who, a few days only before, on board their own gunboat number one, had beaten six of the enemy's fleet, of equal force with themselves, immediately under the guns, and within pistol-shot of a shore-battery: an achievement accomplished only, in their peculiar position, by backing astern, and keeping up an incessant fire of canvass-bags, filled with one thousand musket-balls each, till our gallant commodore in the "Constitution," stood in to take the fire of the battery, and thus enable us, under his cover, to obey the order, "*to come out of action;*" a signal which had already been flying more than an hour, and which Somers at first, would not, and at last (from the fierceness of the fight) could not see.

Naval Magazine.

The Poor Man is, from his situation, cut off from a thousand temptations to vice; and that levity and dissipation of thought which are the common attendants of ease and affluence, are obliged to give way to reason and cool reflection, which are as closely connected with wisdom as vice is with folly.

MANNERS OF THE NORTHERN INDIANS.

BY THE WIFE OF AN EMIGRANT.

This is the fishing season. Our lakes are famous for masquinongé, salmon-trout, white-fish, black-bass, and many others. We often see the lighted canoes of the fishermen pass and repass of a dark night before our door. The darker the night and the calmer the water, the better it is for the fishing.

It is a very pretty sight to see these little barks slowly stealing from some cove of the dark pine-clad shores, and manœuvring among the islands on the lakes, rendered visible in the darkness by the blaze of light cast on the water from the jack—a sort of open grated iron basket, fixed to a long pole at the bows of the skiff or canoe. This is filled with a very combustible substance, called fat-pine, which burns with a fierce and rapid flame, or else with rolls of birch-bark, which is also very easily ignited.

The light from above renders objects distinctly visible below the surface of the water. One person stands up in the middle of the boat with his fish-spear—a sort of iron trident, ready to strike at the fish that he may chance to see gliding in the still waters, while another with his paddle steers the canoe cautiously along. This sport requires a quick eye, a steady hand, and great caution in those that pursue it.

I delight in watching these torch-lighted canoes so quietly gliding over the calm waters, which are illuminated for yards with a bright track of light, by which we may distinctly perceive the figure of the spearsman standing in the centre of the boat, first glancing to one side, then the other, or poising his weapon ready for a blow. When four or five of these lighted vessels are seen at once on the fishing-ground, the effect is striking and splendid.

The Indians are very expert in this kind of fishing; the squaws paddling the canoes with admirable skill and dexterity. There is another mode of fishing in which these people also excel: this is fishing on the ice when the lakes are frozen over—a sport that requires the exercise of great patience. The Indian, provided with his tomahawk, with which he makes an opening in the ice, a spear, his blanket, and a decoy-fish of wood, proceeds to the place, he has fixed upon. Having cut a hole in the ice, he places himself on his hands and knees, and casts his blanket over him, so as to darken the water and conceal himself from observation; in this position he will remain for hours, patiently watching the approach of prey, which he strikes with admirable precision as soon as it appears within the reach of his spear.

The masquinongé thus caught are superiour in flavour to those taken later in the season, and may be bought very reasonably from the Indians. I gave a small loaf of bread for a fish weighing from eighteen to twenty pounds. The masquinongé is to all appearance a large species of the pike, and possesses the ravenous propensities of that fish.

As soon as the ice breaks up, our lakes are visited by innumerable flights of wild-fowl: some of the ducks are extremely beautiful in their plumage, and are very fine-flavoured. I love to watch these pretty creatures, floating so tranquilly on the water, or suddenly rising and skimming along the edge of the pine-fringed shores, to drop again on the surface, and then remain stationary, like a little fleet at anchor. Sometimes we see an old duck lead out a brood of little ones from among the rushes; the innocent, soft things look very pretty, sailing round their mother; but at the least appearance of danger, they disappear instantly by diving. The frogs are great enemies to the young broods; they are also the prey of the masquinongé, and, I believe, of other large fish that abound in these waters.

The Indians are very successful in their duck-shooting: they fill a canoe with green boughs, so that it resembles a sort of floating island; beneath the cover of these boughs they remain concealed, and are enabled by this device to approach much nearer than they otherwise could do to the wary birds. The same plan is often adopted by our own sportsmen with great success.

A family of Indians have pitched their tents very near us. On one of the islands in our lake we can distinguish the thin blue smoke of their wood fires, rising among the trees, from our front window, or curling over the bosom of the waters.

The squaws have been several times to see me; sometimes from curiosity, sometimes with the view of bartering their baskets, mats, ducks, or venison, for pork, flour, potatoes, or articles of wearing-apparel. Sometimes their object is to borrow "kettle to cook," which they are very punctual in returning.

Once a squaw came to borrow a washing-tub, but not understanding her language, I could not for some time discover the object of her solicitude; at last she took up a corner of her blanket, and, pointing to some soap, began rubbing it between her hands, imitated the action of washing, then laughed, and pointed to a tub; she then held up two fingers, to intimate it was for two days she needed the loan.

These people appear of gentle and amiable dispositions; and, so far as our experience goes, they are very honest. Once, indeed, the old hunter, Peter, obtained from me some bread, for which he promised to give a pair of ducks, but when the time came for payment, and I demanded my ducks, he looked gloomy, and replied with characteristick brevity, "No duck—Chippewa (meaning S——, this being the name they have affectionately given him) gone up lake with canoe—no canoe—duck by-and-by." By-and-by is a favourite expression of the Indians, signifying an indefinite point of time; may be it means to-morrow, or a week, or month, or it may be a year, or even more. They rarely give you a direct promise.

As it is not wise to let any one cheat you, if you can prevent it, I coldly declined any further overtures to bartering with the Indians until my ducks made their appearance.

Some time afterward I received one duck by the hands of Maquin, a sort of Indian Flibberty-gibbet: this lad is a hunchbacked dwarf, very shrewd, but a perfect imp; his delight seems to be in tormenting the brown babies in the wigwam, or teazing the meek deer-hounds. He speaks English very fluently, and writes tolerably for an Indian boy; he usually accompanies the women in their visits, and acts as their interpreter, grinning with mischievous glee at his mother's bad English and my perplexity at not being able to understand her signs. In spite of his extreme deformity, he seemed to possess no inconsiderable share of vanity, gazing with great satisfac-

tion at his face in the looking-glass. When I asked his name, he replied, "Indian-name Maquin, but English-name, 'Mister Walker,' very good man; this was the person he was called after.

These Indians are scrupulous in their observance of the Sabbath, and show great reluctance to having any dealings in the way of trading or pursuing their usual avocations of hunting or fishing on that day.

The young Indians are very expert in the use of a long bow, with wooden arrows, rather heavy and blunt at the end. Maquin said he could shoot ducks and small birds with his arrows; but I should think they were not calculated to reach objects at any great distance, as they appeared very heavy.

'Tis sweet to hear the Indians singing their hymns of a Sunday night; their rich soft voices rising in the still evening air. I have often listened to this little choir praising the Lord's name in the simplicity and fervour of their hearts, and have felt it was a reproach that these poor half-civilized wanderers should alone be found to gather together to give glory to God in the wilderness.

I was much pleased with the simple piety of our friend the hunter Peter's squaw, a stout, swarthy matron, of most amiable expression. We were taking our tea when she softly opened the door, and looked in; an encouraging smile induced her to enter, and, depositing a brown papoose (Indian for baby or little child) on the ground, she gazed round with curiosity and delight in her eyes. We offered her some tea and bread, motioning to her to take a vacant seat beside the table. She seemed pleased by the invitation, and drawing her little one to her knee, poured some tea into the saucer, and gave it to the child to drink. She ate very moderately, and when she had finished, rose, and, wrapping her face in the folds of her blanket, bent down her head on her breast in the attitude of prayer. This little act of devotion was performed without the slightest appearance of pharisaical display, but in singleness and simplicity of heart. She then thanked us with a face beaming with smiles and good-humour; and, taking little Rachel by the hands, threw her over her shoulder with a peculiar sleight that I feared would dislocate the tender thing's arms, but the papoose seemed well satisfied with this mode of treatment.

In long journeys the children are placed in upright baskets of a peculiar form, which are fastened round the necks of the mothers by straps of deer-skin; but the *young* infant is swathed to a sort of flat cradle, secured with flexible hoops, to prevent it from falling out. To these machines they are strapped, so as to be unable to move a limb. Much finery is often displayed in the outer covering and the bandages that confine the papoose.

There is a sling attached to this cradle that passes over the squaw's neck, the back of the babe being placed to the back of the mother, and its face outward. The first thing a squaw does on entering a house is to release herself from her burden, and stick it up against the wall or chair, chest, or any thing that will support it, where the passive prisoner stands, looking not unlike a mummy in its case.

The squaws are most affectionate to their little ones. Gentleness and good-humour appear distinguishing traits in the tempers of the female Indians; whether this be natural to their characters, the savage state, or the softening effects of Christianity, I cannot determine. Certainly in no instance does the Christian religion appear more lovely than when, untainted by the doubts and infidelity of modern scepticks, it is displayed in the conduct of the reclaimed Indian breaking down the strongholds of idolatry and natural evil, and bringing forth the fruits of holiness and morality. They may be said to receive the truths of the Gospel as little children, with simplicity of heart and unclouded faith.

The squaws are very ingenious in many of their handyworks. We find their birch-bark baskets very convenient for a number of purposes. My bread-basket, knife-tray, sugar-basket, are all of this humble material. When ornamented and wrought in patterns with died quills, I can assure you, they are by no means inelegant. They manufacture vessels of birch-bark so well, that they will serve for many useful household purposes, such as holding water, milk, broth, or any other liquid; they are sewn or rather stitched together with the tough roots of the

[A Papoose.]

tamarack or larch, or else with strips of cedar-bark. They also weave very useful sorts of baskets from the inner-rind of the bass-wood and white-ash. Some of these baskets, of a coarse kind, are made use of for gathering up potatoes, Indian-corn or turnips; the settlers finding them very good substitutes for the osier-baskets, used for such purposes in civilized countries.

The Indians are acquainted with a variety of dies with which they stain the more elegant fancy-baskets and porcupine-quills. Our parlour is ornamented with several very pretty specimens of their ingenuity in this way, which answer the purpose of note and letter-cases, flower-stands, and work-baskets.

They appear to value the useful rather more highly than the merely ornamental articles that you may exhibit to them. They are very shrewd and close in all their bargains, and exhibit a surprising degree of caution in their dealings. The men are much less difficult to trade with than the women: they display a singular pertinacity in some instances. If they have fixed their mind on any one article, they will come to you day after day, refusing any other you may offer to their notice. One of the squaws fell in love with a gay chintz dressing-gown belonging to my husband, and though I resolutely refused to part with it, all the squaws in the wigwam by turns came to "look at gown," which they pronounced with their peculiarly plaintive tone of voice; and when I said "no gown to sell," they uttered a melancholy exclamation of regret, and went away.

They will seldom make any article you want on purpose for you. If you express a desire to have baskets of a particular pattern that they do not happen to have ready-made by them, they give you the usual vague reply of "by-and-by." If the goods you offer them in exchange for theirs do not answer their expectations, they give a sullen and dogged look or reply, "*Car-car*," (no, no,) or "*Carwinni*," which is a still more forcible negative. But when the bargain pleases them, they signify their approbation by several affirmative nods of the head, and a note not much unlike a grunt; the ducks, fish, venison, or baskets, are placed beside you, and the articles of exchange transferred to the folds of their capacious blankets, or deposited in a sort of rushen wallet.

The women imitate the dresses of the whites, and are rather skilful in converting their purchases. Many of the young girls can sew very neatly. I often give them bits of silk and velvet, and braid, for which they appear very thankful.

Lib. of Ent. Knowledge.

THE FIVE SENSES.

SENSE OF HEARING—No. II.

6. PASSAGES OF THE TYMPANUM.

From the descriptions and figures given, the reader will easily conceive that the bony cavity of the tympanum is a small chamber, having an opening on one side, closed by the drum, and containing the chain of bones already enumerated. Now, towards the inner side of the cavity, three holes or passages open, together with some smaller ones, which we shall describe.

1. The eustachian tube. This commences in a funnel-shaped aperture, at the back part of the mouth, behind the palate, and passing backward, narrows in its diameter, and opens by a small hole into the chamber of the tympanum.

2. The oval hole, or *foramen ovale*. This is an irregular formed oval hole, situated nearly opposite the tympanum, and opening into the vestibule or central cavity of the labyrinth.

3. The round hole, or *foramen rotundum*, is placed in the side of the cavity, and leads into one of the scalæ of the cochlea. Besides these holes, there are, as we have hinted above, several others of minor importance, which open into certain cavities in the substance of the bone forming the base of the scull, and called the mastoid cells, or *cellulæ mastoideæ*.

External view of the Cochlea and Semicircular Canals, of the natural size.

7. THE LABYRINTH.

The labyrinth is a collective name for three very peculiar structures which constitute the internal ear, and in which the sense of hearing is produced. These are the *vestibule*, the *semicircular canals*, and the *cochlea*. The cavities we have hitherto described are filled with air, and have a free communication with the atmosphere, but these contain an aqueous fluid in which the auditory nerves are expanded.

8. THE VESTIBULE.

This, which forms a kind of antechamber to the semicircular canals, and the cochlea, is a cavity of an oval form, covered with numerous hollows, and pierced with many holes for the transmission of the branches of the nerves. It will be recollected that the oval hole forms a medium of communication between the vestibule and the tympanum.

9. THE SEMICIRCULAR CANALS.

When the vestibule is cut open, five circular holes are seen, which are the mouths or openings of the semicircular canals. These canals are delicate bent tubes of bone, so small that the head of a pin will fill one of them. They are distinguished by the names, the *superiour*, or vertical, the *posteriour*, or oblique, and the *exteriour*, or horizontal. The posteriour and superiour run into each other at one end, and open into the vestibule by one common orifice, which accounts to the reader for there being only *five* instead of *six* openings, as he might have supposed.

10. THE COCHLEA.

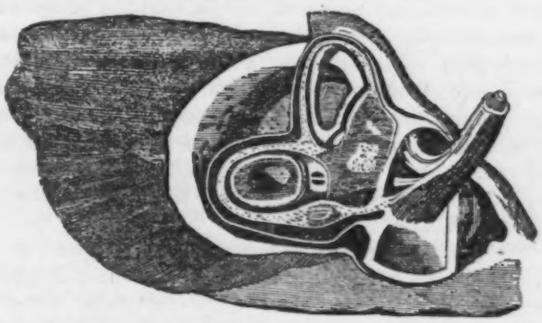
The cochlea is one of the most curious pieces of apparatus in the body, and, from its complicated structure, is so difficult to describe, that it will be best understood by reference to our figures. It consists of a central pillar of spongy bone, called the *modiolus*, round which is wound a spiral chamber, which, making two turns and a half, narrowing from the base to the apex, is called collectively *scalæ cochleæ*. This is divided, throughout its whole length, by a thin plate of bone, called the *spiral lamina*

lamina spiralis, and of course forms a double winding passage, round the central pillar. At the apex of the cochlea, these two passages open into one, and together with the termination of the modiolus, form a small chamber called the *infundibulum*. At the base of the cochlea, *one of these spiral passages opens into the vestibule, and the other into the tympanum, by the foramen rotundum.*

[Section of the Cochlea.]

A, the Modiolus; *B*, Lamina Spiralis; *C*, Scalæ Cochleæ; *D*, Infundibulum.

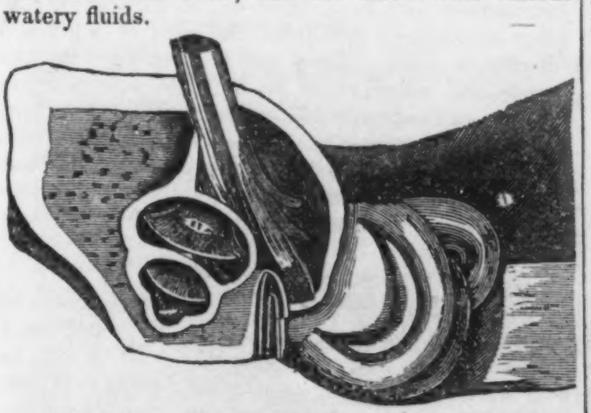
11. THE INTERNAL AUDITORY PASSAGE, OR THE MEATUS AUDITORIUS INTERNUS.



[Distribution of the Nerves in the Semicircular Canals.]

12. MEMBRANES AND FLUIDS OF THE LABYRINTH.

The vestibule, semicircular canals, and cochlea, are filled with the most delicate membranes, disposed in minute bags and tubes, which articulate and interlace each other, and are filled with various watery fluids.



[Distribution of the Nerves in the Cochlea, magnified.]

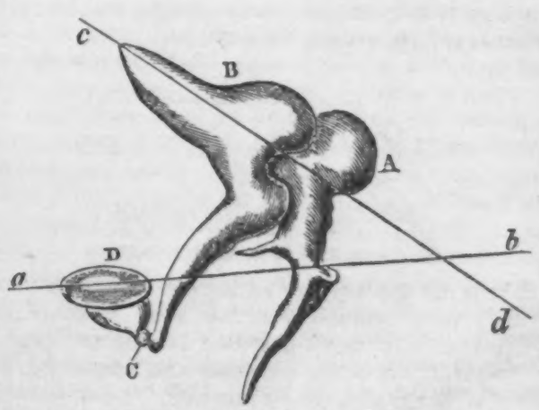
13. THE NERVES.

The nerves of hearing, called by anatomists the seventh pair, enter the ear by the internal auditory passage, and are spread in beautiful ramifications upon the membranes in the labyrinth.

We shall now describe the connexion of these several parts, and the manner in which they discharge their important functions in the production of hearing, and trace the progress of sounds from one structure to another, till their final perception by the mind.

Let us imagine the Swiss soldier, far from his native land, suddenly aroused from the dull monotony of his duties, by the sound of the *Rans des Vaches*, that simple melody, which never fails to call up the associations of home so strongly, as to induce him to quit his post, and return to his family. What is his first emotion? He turns an ear in the direction of the musick, and stands as still as death. The body, by its disquietude, disposes itself to an undisturbed reception of the sounds, and this is done by an instantaneous sympathy between all the parts of our complicated system. An ear thus placed, collects the atmospherick tremours, and converges them into the auditory passage, and through it to the membrane of the tympanum. Against this, (the drum of the ear,) the musical tremours strike, and cause it to vibrate in accordance. These vibrations are immediately communicated to the chain of bones which lie behind the membrane; and by a beautiful mechanical operation, they are then increased or diminished in their intensity, according as the sounds are too low in themselves to be heard distinctly, or too high to be borne with pleasure.

To comprehend the mode in which this is performed, it will be necessary to consider the connexion and function of the four bones which we have already described, and which our young friends will now be pleased to read again. The end of the long handle of the malleus, is fastened to the centre of the tympanum, and is destined immediately to receive the vibrations of that membrane. The head of the malleus is joined to the body of the incus in such a manner, that the vibrations of the malleus are considerably magnified in their passage through it. In fact, the two bones act as a compound-lever, in which, while one end moves at one speed, the other moves at three times the rate, or more, as the case may be. It is, however, quite impossible to convey a clear notion of this contrivance by words only, and we therefore beg a close inspection of the following figure, which represents the chain of bones in their natural position.



[Bones of the Ear, magnified.]

A, the Malleus; *B*, the Incus; *C*, the Os Orbiculare; *D*, the Stapes; *a*, *b*, a line representing the centre of motion of the Malleus; *c*, *d*, the centre of motion of the Incus.

In this view, to quote the words of Sir Charles

Bell, "we see that the head of the malleus is so articulated with the body of the incus, that the centre of motion of the incus is in a line drawn through the centre of its body, and consequently, that the extremity of the long process, to which we see the os orbiculare and stapes attached, moves through a greater space than that which receives the impulse of the head of the malleus. Thus a very small degree of motion, communicated by the head of the malleus to the body of the incus, must be greatly increased in the extremity of the long process of the incus, and, consequently, this mechanism of the bones essentially assists in giving strength to the vibration which is transmitted inward to the great seat of the nerve."

We have frequently tested this adaptation of the ear for the perception of the lowest sounds in the following manner, and have received very high gratification by the result:—In the stillness of a summer's day, when it is usually considered that all sounds are at rest, and when indeed they are so to a common observer, we have sat ourselves down by a hedge, closed our eyes, and listened to the silence. Immediately thousands of miniature melodies have peopled the empty void, and the very silence has become eloquent. The trill of the butterfly's wing, the notes and peculiar noises of multitudes of insects, the vibrations of a leaf, and the low gratulatory notes which loving birds emit, all became distinctly audible. Indeed, we have almost fancied we could hear the unfolding of the buds and flowers.

The kind Creator does not, however, stop here; for as we might have been incommoded by the inability to perceive very low sounds, so also we might have suffered from loud, sudden, or piercing ones; but for all these he has made complete provision. In the case we have described, the object to be attained was the *increase* of sound; but in that which we are about to explain, the end is to *diminish* it. This is effected by a combination of *two* very simple operations; first, by a relaxation of the tensity of the tympanum, just as we would slacken the string of a bow; and, secondly, by abridging the amount of leverage in the bones. The immediate agents in producing these changes, are four little muscles: the first, which is called the *tensor tympani*, is fastened into the body of the malleus, and by pulling the long handle of that bone, draws the tympanum inward, and, of course, tightens and prepares it for the reception of low sounds; but when a sudden irruption of sound shakes the air, the contrary effect is produced by a relaxation of the muscle, and the tympanum, loosened from its grasp, becomes comparatively flaccid, and in that state transmits a deadened, muffled impression of the offensive noise to the brain. But to ensure an immediate and sufficient relaxation of the tympanum, it has not been left to the action of this muscle alone; a second one has been added, called the *laxator tympani* which arises from the temporal bone, and is inserted into the handle of the malleus, and at once pulls it forward, and of course aids, while it ensures, the desired alteration. A third muscle is also inserted into the malleus, and a fourth into the stapes, and by their joint action, modify the degree of motion in the bones, and limit the quantity of sound which they transmit.

Our readers will now have traced clearly the progress of a sound to the stapes, the last of the chain of bones, which they will please distinctly to observe is placed accurately upon the foramen ovale, or oval hole of the labyrinth, in the same way as a seal rests upon its impression. When it has reached this point, the oscillations of the bones are given off to the membrane, which, like another tympanum, is stretched across the oval hole, and from it communicated to the fluids which fill the vestibule. The tremours in the labyrinth are then carried in an undulating wave through the semicircular canals, and thence into the spiral passages of the cochlea, in both of which, it will be remembered, the auditory nerves are expanded, and which now receive the aerial vibrations, and communicate them to the brain.

But the function of hearing is not yet complete: the walls of the labyrinth being composed fully of bone, some contrivance is wanting to get rid of the vibrations after they have struck the nerves. In the cavity of the tympanum we observed that *two* holes communicated with the labyrinth, the foramen ovale, or oval hole, and the foramen rotundum, or round hole. The latter of these answers this important purpose. When the sounds have done their office, and reached in the scala of the cochlea the end of their journey, they collectively strike against the membrane which closes this hole, and are given off to the air in the tympanum. Now, it will be remembered, that we mentioned a third aperture in the tympanum, communicating with the mouth through the eustachian tube; and as the air in the tympanum by this means is enabled freely to interchange with the atmosphere, it is at the same time enabled easily to dissipate the worn-out sounds which it receives from the foramen rotundum.

Thus is the sense of hearing made complete; and thus is man blessed by his Maker with the power of perceiving upwards of twenty thousand simple sounds:—a glorious alphabet! which we may be allowed to say, should never be prostituted to any lesser use than its GREAT AUTHOR'S PRAISE.

[*The Sense of Smelling in our next.*]

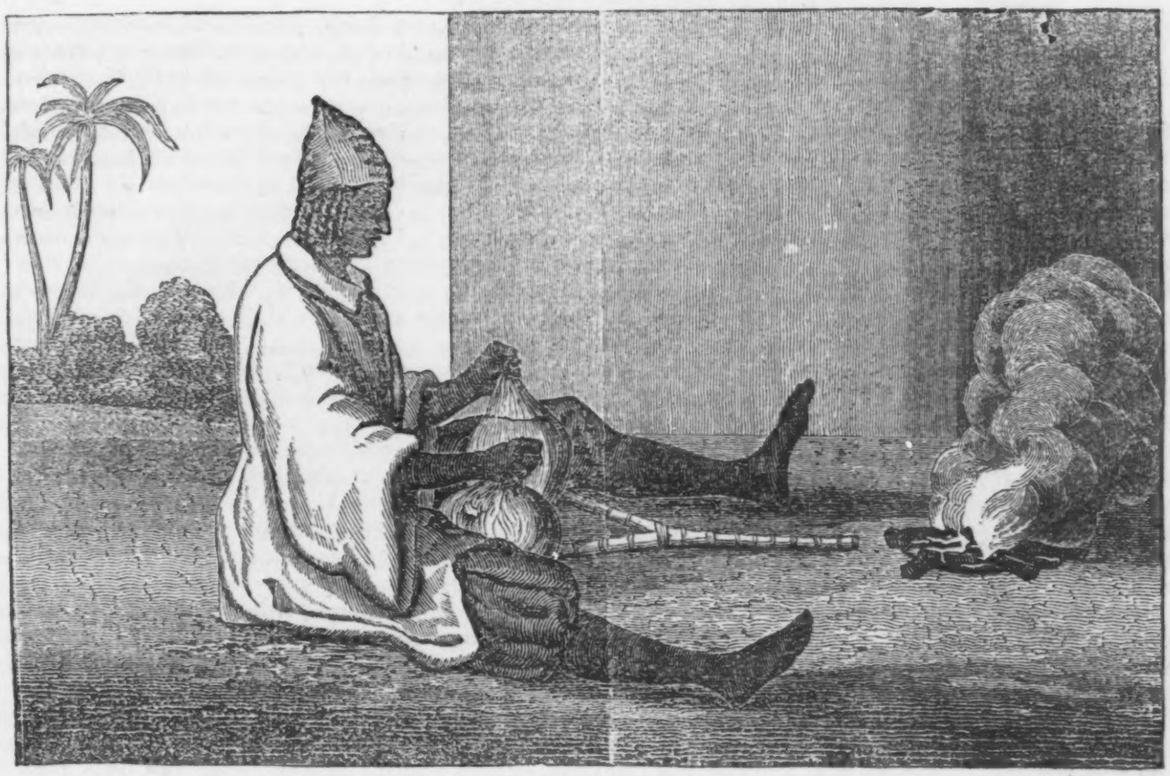
For the Family Magazine.

THE WISH.—By Mrs. Lydia Baxter.

Oh! could I dwell in some lone spot,
Where fragrant breezes blow,
With a pure rill before my cot,
Passing in murmurs low;
Where sweetest flowers arise to greet
The rays of morning's sun,
And peace and plenty smiling meet
My cheerful board alone!—

Oh! could I dwell with *one* kind friend,
In such a place as this,
Whose sorrows with my own should blend,
And sweeten all my bliss—
I would not ask for India's mines,
Nor princess' gay attire;
But sweet content a wreath should bind
Around my brow entire.

New York, May 16th, 1836.



[Foulah Blacksmith.]

LIVING COSTUMES.

THE above illustration represents a blacksmith at his daily avocation in Freetown. In the Foulah suburb of the capital of Sierra Leone, we see artisans sedulously employed in various trades: making sandals and war-pouches, platting straw for hats, or writing Koran verses for sale. Their blacksmiths work ingeniously and well, in spite of the want of such tools as an American smith would consider indispensable. Sitting on the ground, the Foulah holds his strange rude bellows between his legs, and contrives to heat his metal in a little heap of glowing charcoal. These bellows are of simple construction: A couple of calabashes, with a hole at the top of each, crowned with a band of loose goatskin or calfskin, and connected together by two hollow bamboos inserted into their sides and uniting at an angle, where another single straight bamboo is fixed to serve as the nose. In working the apparatus, the Foulah grasps a skin in each hand: one he holds tightly, and strikes it down on the calabash, so that the air is forced through the tube at the side; at the same time he is raising the other open skin to its utmost stretch, so as to contain as large a volume of air as possible: he then closes it with a firm hand and dashes it down: alternately raising and depressing, he maintains a uniform current of air through the single bamboo. The gaudy-peaked cap, the curled ringlets on the shoulders, and the abundance of cotton drapery falling to the ground during the operation, make the smithy of Foulah a sight worth seeking.

At the island of Tombo, I was shown the lock of a rifle, which had been beautifully repaired by one of these men, who had never seen any excepting the fractured one in question: he had made a new bridle, and long examination was necessary to discover what part had been substituted. On first beholding a pair of fine steel spectacles, the astonished Mahometan lifted his hand in extreme wonder at their fine workmanship and spring, and, looking at me, uttered the wonted Bismullah! (in the name of God!) yet he subsequently repaired them neatly and effectually. Silver rings of portentous dimensions, shield-shaped and stamped with abstruse hieroglyphicks, are favourite specimens of their art. In steel and leather-work, the Foulahs excel. To do them justice, however, they are great knaves. Peace be to them! It is worthy of remark, that the blacksmith and the tailor are two of the honourable professions or castes: and when in the wild country of the Timmanees, I have stood by the royal hovel of one of the great king Ali Carlie's sons, a convert, and watched the cross-legged prince, plying his coarse needle, as indefatigably and as regally as did his late majesty of Spain, of pious memory, when embroidering the garment for the virgin. His royal highness of Magbelly, however, was more selfish in his pursuits, being simply occupied in repairing an antique pair of his own trowsers. Such peaceful tastes, such industrious habits, such economical practices, are commendable especially in a prince.

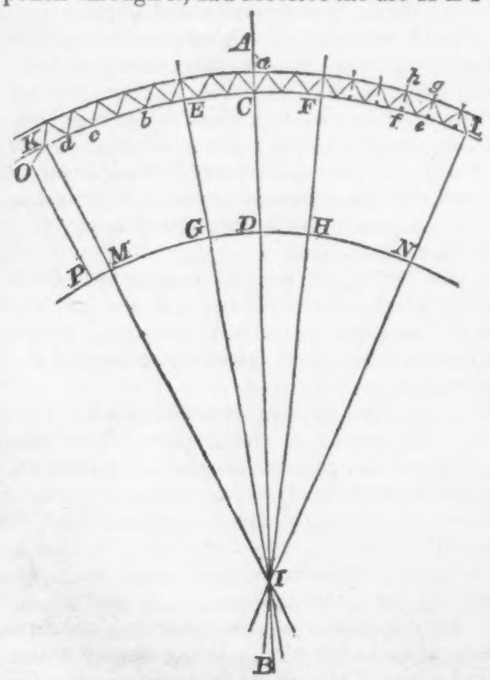
White Man's Grave.

Benevolence.—IT was remarked by Cicero, that man resembled God in nothing so much as in doing good to others. Benevolence is one of those virtues which redeem the human character from the thraldom of sordid selfishness, and is indeed, as Shakspeare terms it, like the gentle dew from heaven, refreshing and cheering the kindred virtues of the heart, while it diffuses life and fertility over the "place beneath."

LADIES' DEPARTMENT.

AMUSEMENT AT HOME.

To make Card-board Flower-stands.—Procure four round pieces of deal-wood, from a turner, for the bottom of the flower-stands, each half an inch in thickness, and having a sloping edge, like the sides of a saucer, but not so much aslant. The card-board, on which the paintings are done, is now to be marked with a pair of compasses, making the upper line parallel to the lower. Perhaps the most satisfactory plan will be to form a pattern upon a stiff sheet of common cartridge-paper, to avoid the risk of spoiling the paintings. This may readily be done in the following manner:—draw a straight line, A B, down the middle of the cartridge-paper, then measure the height of the flower-pot placed on the wooden bottom, and mark it on the upper part of A B, as at C D; you must next measure the width across the top of the flower-pot, adding about half an inch, otherwise you will not be able to get it out when you wish; divide the measurement in half, with a pair of compasses, and placing one leg on the point C, make a mark on each side, as at E and F; the smaller diameter of the wooden bottom must be treated in the same manner, and marks made as at G and H on each side of D; then, with a long ruler, draw straight lines through E G and F H, and you will find that they both pass through the line A B at the same point I. Draw through D the arc M G H N with the compasses; but as they will not be sufficiently long to describe the upper arc, you can take a long slip of Bristol board, about an inch wide, and fixing one end with a drawing-pin to the point I, make a small hole through the other end at the proper distance to fall upon C; insert the point of a pencil through it, and describe the arc K E F L:



the next thing to be done is to mark off on each side of the bottom G H another diameter; but as the circumference of a circle is rather more than three times its diameter, some allowance must be made; thus, if the diameter of the bottom be four inches, (which will be about the size required,) mark off four inches and a quarter at M and N, draw lines from I through M and N to meet the outer arc at K and L. Now mark off an additional slip O P about an inch wide, to serve as an overlap when glued together, and the figure is complete, unless you wish to have the top finished off with a vandiked or scolloped edge, in which case, before it is cut out, the form of the vandike must be drawn in the following manner. Determine the height, and mark it off at *a*, through which draw an arc as before; now ascertain the middle point of the arc C K, this may be very quickly done by lightly placing one leg of the compasses on the point C, and with the other, having fixed upon the centre as near as the eye can judge, turn the compasses alternately from C to K, to see how much you are out; by repeating this once or twice you will find the exact centre, which mark at *b*; divide *b* K in the same manner as at *c*, and *c* K as at *d*; now run the compasses along the arc from K to L, making a puncture at every step, and you will find that you have very correctly divided it into sixteen portions. To find the points for the top of the vandike, I again halve these portions as at *e f*, and with a long straight rule carry lines from I through *e* and *f*, making pencil-marks at *g h*, and so all along the arc. It will much assist the operation if a stout pin be stuck perpendicularly into the table through I, against which one end of the ruler may rest, and turn as on a centre. If you then draw lines from point to point the figure is finished; and it may be cut out with a pair of scissors. This pattern may then be placed over each of the drawings, and a pencil-line carried all around it; placing it so carefully as to let the drawings be straight in the middle.

If you like to trace the outline of this form upon transparent tracing paper, you can place that over the paintings, and trace the form with black paper; or a more simple plan still will be, to place the paper, out of which the form was cut, and mark a pencil-line round as much of it as is left whole from cutting out the form; or perhaps it will please you still more if you place your pattern on another part of the cartridge-paper, and after drawing a line round the whole, cut it out so as to leave the opening entire, when it may be placed over the drawings without any uncertainty. With some strong gum, thick paste, or thin glue, the ends are to be joined together. It is now to be placed on a board or table, and a flat ruler laid upon the pasted parts, with some lead weights on that, to press it well while wet; in about two hours it will be set enough to admit of being removed without the risk of separating, and the piece of wood for the bottom may be put in, by applying thin glue to the lower part of the card-board inside, where the wood will touch it, and also to the edge of the wood. This must be done as quickly as possible, lest the glue become dry, which it will do rapidly. To set the bottom in its proper place, without touching and soiling the sides, fix a tracer firmly into the middle of the wood, and lower it down carefully until it reaches the bottom of the card-board.

Before the card-board is joined together in its circular form, a piece of drawing paper, one half of which is notched all along, is to be pasted on the inside of the card-board, letting the notched part hang below the card: it may then be bent into its round form and fastened, and when dry, the notched

paper is turned within, and being well gummed or pasted, put on to the stand, the separate pieces of paper pressed down, and a book, or something heavy, laid on the top until it is dry, to keep it close together.

The most simple of the cements we have mentioned, is liquid gum, which is made from the best gum arabick procured at a chymist's. The difference in the quality of this article is discovered by its colour, the whitest being the best. Put a tablespoonful of gum into a teacup, and pour about two of the same spoonfuls of water over it, and one spoonful of pale vinegar, and leave it for a day, then stir it well with a spoon, and pour it into a bottle for use. The vinegar is serviceable, both in dissolving the gum and in preserving it from becoming mouldy. The most frequent errour, in making liquid gum, is that of putting too great a proportion of water, and thus lessening its adhesive quality. To make good paste, take a large spoonful of flour and put it into a basin, then add as much cold water as will moisten it, and mix it thoroughly with a spoon; add a little more cold water until it is of the consistency of cream: pour this into about half a pint of boiling water, stirring the water at the time with a spoon; add half a teaspoonful of powdered alum, and let it boil about two or three minutes, stirring it all the time, when it will be fit for use. The alum will preserve it for weeks. To make glue fit for cardboard work, either common or Indian glue may be used. Put a piece of about the size of a small finger into a teacup, half full of cold water, and let it remain for twenty-four hours; it may then be placed over a small saucepan of boiling water for half an hour, when it will be melted and fit for use. There should be enough water in the saucepan to touch the bottom of the cup when placed on it. If the common glue be used, a little powdered white sugar, about as much as will lie on a sixpence, may be added to prevent its drying too rapidly.

OF THE STRUCTURE OF THE BODY, AS CONNECTED WITH EXERCISE.

OF THE BODY GENERALLY.

In relation to the purpose of exercise, the body may be regarded as composed of many levers, connected with, and moveable upon, each other in various degrees.

The *bones* more especially constitute the levers, upon which all the greater motions depend.

The *joints*, or articulations, at once connect these levers, and facilitate their motion.

To form these joints, the ends of the bones are rounded, remarkably smooth, and lubricated with a peculiar liquid; are surrounded by protecting capsules or bags; and are united, laterally or otherwise, by ligaments or bands, which limit the direction of their motions. Between some of their ends exist also moveable cartilages, by which their motions are extended, and all shocks which pass through them are diminished.

The *muscles*, generally disposed in pairs on each side of the body, are the moving powers.

These bundles of muscular fibres form the layers and masses of flesh, which lie between the skin and the various bones which cover the neck, the back, the sides, the pelvis or haunches, and hips, and which principally give shape to the limbs. Almost every muscle is fixed to two different bones by its extremities; and its middle generally passes more loosely over one or more joints which it is destined to move.

Of the peculiar mechanism of muscular motion, it is enough here to say, that these muscles receive nerves which communicate with the lesser brain, (the cerebel or organ of the will); and when that organ wills a movement, it, through these nerves, excites those muscles, which are to be the means of the peculiar operation, to shorten and swell up. Now, as the muscles cannot bring their fixed extremities nearer to each other without also bringing, along with these, the bones to which they are attached, the intermediate joint or joints are bent, and motion takes place in the limb, or throughout the body.

Such is the general mechanism of all our greater motions.

OF THE VERTEBRAL COLUMN IN PARTICULAR.

One of the most important portions of the body is the vertebral column, spinal column, or backbone, as it is commonly called.

The backbone is a pillar composed of twenty-four short bones, called vertebræ, having somewhat cylindrical bodies before, a bony ring in the middle, an irregular projection on each side, and a prominence in the centre which is felt distinctly from the neck and down the back. These are placed one upon another, the smaller being always uppermost; and they extend from the large bones that support the body, when sitting, to the lowest part of the head.

These small bones, or vertebræ, are connected together by the whole of the flat upper and under surfaces of their bodies, a thick cartilage or gristle being interposed between every two; this gristle is capable of being compressed; and hence a person is taller in the morning, after a good night's rest, than in the evening, when this cartilage has been pressed down by the weight of the head. The vertebræ are also connected by the apposition of certain lateral projections or processes. They are maintained in their relative position by means of small bundles of strong and elastick ligamentous fibres, attached firmly to the margins of their bodies, and to the projections of every two bones.

The position of the backbone, or spinal column, thus formed and connected, is, in all its lateral relations to the plain on which we stand, perfectly perpendicular; but it is naturally curved, forward and backward.

While, by the cartilaginous connexion of the bodies of the vertebræ, and by the disposition of some parts of the projections that have been mentioned, joints are formed, and provision is made for the column being bent in every direction, other projections allow certain muscles at once to take firm hold, and greatly to increase their purchase in actually bending the spinal column.

The moving power of the vertebral column is composed of these muscles. Being chiefly attached to the sides and back of each vertebra, they form two considerable masses of fleshy fibres placed one on each side of the ridge in the middle of the back.

These masses exert such balancing power over

every separate bone, or vertebra, in relation to or upon that placed immediately beneath it, as to keep the whole pile at rest and upright, in regard to its lateral aspect. They bend it also both laterally and backward. It is chiefly by other muscles on the forepart of the body that it is bent forward. By the whole, it may be bent in any requisite direction within certain limits; and after performing its various inflections, it is, by means of its elastick ligaments and other muscles, enabled to regain the vertical position.

Thus, each of the four-and-twenty vertebræ, or small bones of the spinal column, is a lever, whose support is the upper surface of the somewhat larger vertebra upon which it rests.

IMPORTANT CIRCUMSTANCES TO BE NOTED.

Having very briefly described this column, it is here especially necessary to observe, that the bones of adults owe their solidity to an earthy material, called phosphate of lime; but that the bones of infants contain very little of this matter, and are, accordingly, very soft and flexible. In proportion, however, as more earthy matter is added, the bones of children become harder and less flexible; and this hardening increases till the prime of life, when no trace of the soft part, or cartilage, on or in which the bony matter was deposited, can be observed. The progress of this hardening of the bones may, by various causes, be accelerated or retarded. This, obviously, is important in relation to the constrained positions to which girls are subjected.

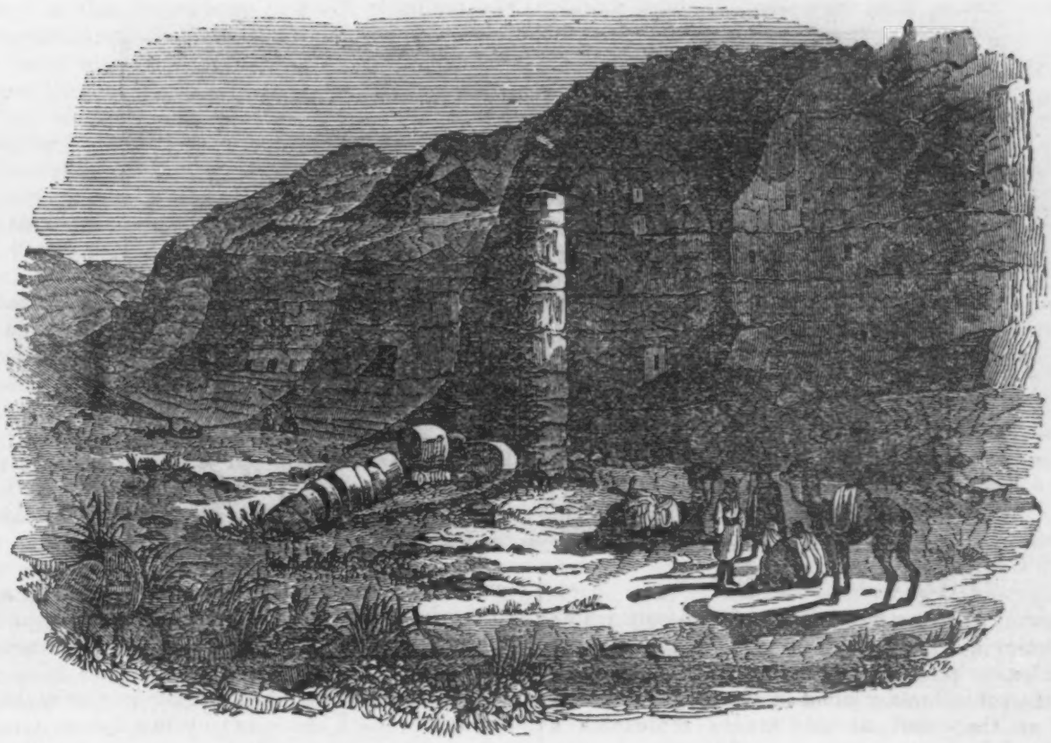
Farther, in youth, all the bones are formed of various distinct pieces, and these pieces long continue very imperfectly connected. Every one has remarked the soft places in the heads of infants; the bones of the head not being perfectly formed at birth. So, too, every long bone consists of three separate pieces during early youth, and these do not become perfectly consolidated till the age of sixteen, eighteen, or later. This also is important in relation to the constrained positions to which girls are subjected.

Not only do these causes of flexibility exist in the bones in general, but, in relation to the vertebral column, or backbone, the substance is liable, by long-continued pressure or extension, to be permanently altered in thickness at any part, and thereby to alter also the direction of the vertebral column. Throughout the centre of this flexible spinal column also, there exists a somewhat three-sided tube, for the purpose of containing the portion of the nervous system, improperly denominated the spinal marrow, a nervous and brainy production, on which the sensation and motion of the body and limbs depend, and which is connected superiorly with the greater brain before, and the lesser behind. The last two facts are of the greatest importance, considered in relation to the constrained positions to which girls are subjected.

ILLUSTRATIONS OF SCRIPTURE.

In the twenty-third chapter of Genesis, and the nineteenth verse, we find the phrase, "*the cave of the field of Machpelah.*" This chapter affords the earliest notice of the practice, which was formerly very prevalent in the East, of depositing the dead in natural or artificial caves, great numbers of which are still to be found in Palestine, Syria, Egypt, and Persia. In the mountainous country of southern Palestine there are abundance of natural caves in the rocks, which might easily be formed into commodious sepulchral vaults; and where such natural caves were wanting, sepulchres were hewn in the rock for such families as were able to incur the necessary expense; for this was the mode of sepulchre decidedly preferred by those who could obtain it. The arrangement and extent of these caves varied with circumstances. Those in the declivity of a mountain were often cut in horizontally; but to others there was usually a descent by steps from the surface. The roofs of the vaults are commonly arched; and sometimes, in the more spacious vaults, supported by colonnades. These rocky chambers are generally spacious, being obviously family vaults, intended to receive several dead bodies. Niches, about six or seven feet deep, are usually cut in the sides of the vault, each adapted to receive a single corpse; but in some vaults, small rooms are cut in the same manner; and in others, stone slabs of the same length, are fixed horizontally against the walls, or cut out of the rock, one above another, serving as shelves on which the corpses were deposited: in others, however, the floor itself is excavated for the reception of the dead, in compartments of various depths, and in the shape of a coffin. Some of the bodies were placed in stone coffins, provided with sculptured lids; but such sarcophagi were by no means in general use; the bodies, when wound up in the grave-clothes, being usually deposited without any sort of coffin or sarcophagus. The vaults are always dark, the only opening being the narrow entrance, which is usually closed by a large stone, rolled to its mouth; although some of a superiour description are shut by stone doors, hung in the same manner as the doors of houses, by pivots turning in holes, in the architrave above, and in the threshold below. Some of these vaults consist of several chambers, one within another, connected by passages. The innermost chambers are usually deeper than the exteriour, with a descent of several steps. When there is more than one chamber, the outermost seems to have a sort of anteroom, the walls being seldom occupied with sepulchral niches or shelves. This cave of Machpelah became, after the purchase by Abraham, the family sepulchre of the Hebrew patriarchs; and it is reasonable to conclude that it was of superiour size, and contained more than one apartment. The Spanish Jew, Benjamin of Tudela, visited the place about six hundred and fifty years ago; and as his account is precise and interesting, we quote it from "Purchas his Pilgrimes," 1625:—

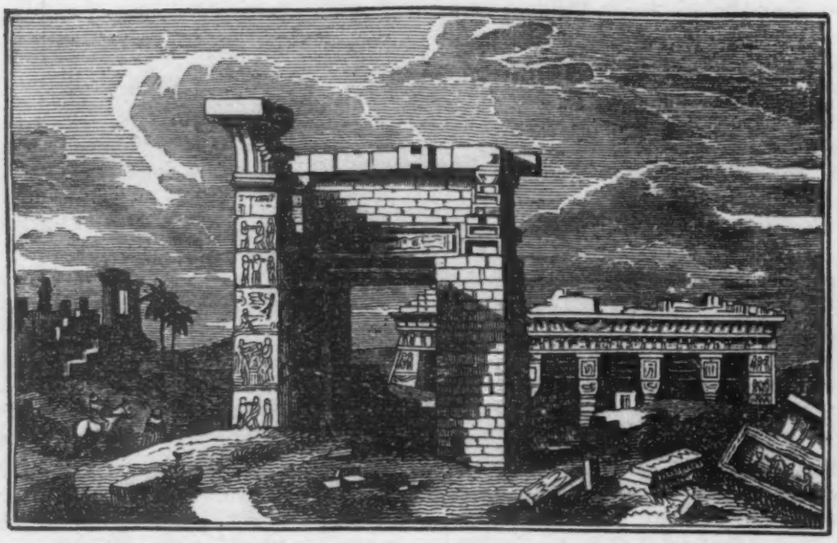
"I came to Hebron, seated in a plaine; for Hebron, the ancient metropolitan citie, stood upon an hill, but it is now desolate. But in the valley there is a field, wherein there is a duplicitie, that is, as it were, two little valleyes, and there the citie is placed; and there is an huge temple there, called Saint Abraham, and that place was the synagogue of the Iewes, at what time the country was possessed by the Ismaelites. But the Gentiles, who afterwards obtayned and held the same, built sixe sepulchres in the temple, by the names of Abraham, Sara, Rebecca, Iacob, and Lia [Leah]. And the inhabitants now tell the pilgrimes that they are the monuments of the patri-



[Sepulchral Caves in the Cliffs of Wady Mousa, in Mount Seir. From Laborde.]

arkes; and great summes of money are offered there. But surely, to any Iew coming thither, and offering the porters a reward, the cave is shewed, with the iron gate opened, which from antiquitie remayneth yet there. And a man goeth down with a lampe-light into the first cave, where nothing is found, nor also in the second, until he enter the third, in which there are the sixe monuments, the one right over against the other; and each of them are engraven with characters, and distinguished by the names of every one of them after this manner:—'*Sepulchrum Abraham patris nostri, super quem pax sit;*' and so the rest after the same example. And a lampe perpetually burneth in the cave, day and night; the officers of the temple continually ministering oyle for the maintenance thereof. Also, in the self-same cave, there are tuns full of the bones of the ancient Israelites, brought thither by the families of Israel, which even untill this day remayne in the self-same place." This curious account agrees pretty well with the above general description. The word "*Machpelah*" means double, applied rather to the field containing the cave than to the cave itself. Benjamin's mention of the two valleys forming, as Purchas translates, "the field of duplicity," explains the application which has perplexed Calmet and others. Sandys, who was there early in the seventeenth century, and who describes the valley of Hebron as "the most pregnant and pleasant valley that the eye ever beheld," mentions the "goodly temple" built by the emperess Helena, the mother of Constantine, and afterward changed into a mosque, as a place of much resort to Moslem pilgrims. John Sanderson was there in the summer of 1601, and the account he gives agrees, as far as it goes, with that of the Spanish Jew; but access to the cave was more restricted than it seems to have been in the time of the latter. He says:—"Into this tombe not any are suffered to enter, but at a square hole, through a thick wall, they may discern a little light of a lamp. The Iewes do their ceremonies of prayer there without. The Moores and Turkes are permitted to have a little more light, which is at the top, where they let down the oyle for the lampe; the lampe is a very great one, continually burning."

For upwards of a century, only two or three Europeans have been able, either by daring or bribery, to obtain access to the mosque and cave. Ali Bey, who passed as a Mussulman, has given a description of it; but his account is so incompatible with all others, and with the reports of the Turks, that it is difficult to admit of its accuracy. According to all other statements, the sepulchre is a deep and spacious cavern, cut out of the solid rock; the opening to which is in the centre of the mosque, and is seldom entered even by Moslems; but Ali Bey seems to describe each separate tomb as in a distinct room, on a level of the floor of the mosque. These rooms have their entrances guarded by iron gates, and by wooden doors plated with silver, with bolts and padlocks of the same metal. He says:—"All the sepulchres of the patriarchs are covered with rich carpets of green silk, magnificently embroidered with gold; those of their wives are red, embroidered in like manner. The sultans of Constantinople furnish these carpets, which are renewed from time to time. I counted nine, one over the other, upon the sepulchre of Abraham. The rooms also which contain the tombs are covered with rich carpets." We can only reconcile this with the other statements by supposing that the Turks have put these monuments upon the level of the floor, immediately over the supposed resting-places of the patriarchs in the cave underneath; and that, instead of conducting them into the crypt, these tombs above ground are shown to ordinary visiters.



ARCHITECTURAL MONUMENTS.

Among the many monuments of antiquity which the destroying hand of time has spared for the admiration of posterity, there are none more wonderful than those to be found in Egypt. The illustration at the head of this article represents a general view of the northern gate of Dendera. The ruin is described in Russel's interesting "*View of Ancient and Modern Egypt*," which forms the twenty-third volume of Harper's Family Library.

He remarks: "Dendera, which is commonly identified with the ancient Tentyra, presents some very striking examples of that sumptuous architecture which the people of Egypt lavish upon their places of worship. The gateway in particular, which leads to the temple of Isis, has excited universaladmiration. Each front, as well as the interiour, is covered with sculptured hieroglyphicks, which are executed with a richness, a precision, elegance of form, and variety of ornament, surpassing in many respects the similar edifices which are found at Thebes and Philoe. The height is forty-two feet, the width thirty-three, and the depth seventeen. 'Advancing along the brick ruins,' says Dr. Richardson, 'we came to an elegant gateway, which is also sandstone, neatly hewn, and completely covered with sculpture and hieroglyphicks, remarkably well cut. Immediately over the centre of the doorway is the beautiful Egyptian ornament usually called the globe, with serpent and wings, emblematical of the glorious sun poised in the airy firmament of heaven, supported and directed in his course by the eternal wisdom of the Deity. The sublime phraseology of Scripture, 'the Sun of Righteousness shall rise with healing on his wings,' could not be more emphatically or more accurately represented to the human eye than by this elegant device.' The temple itself still retains all its original magnificence. The centuries which have elapsed since the era of its foundation have scarcely affected it in any important part, and have impressed upon it no greater appearance of age than serves to render it more venerable and imposing. To Mr. Hamilton, who has seen innumerable monuments of the same kind throughout the Thebaid, it seemed as if he were now witnessing the highest degree of architectural excellence that had ever been attained on the borders of the Nile. Here were concentrated the united labours of ages, and the last effort of human art and industry, in that uniform line of construction which had been adopted in the earliest times.

The portico consists of twenty-four columns, in three rows; each above twenty-two feet in circumference, thirty-two feet high, and covered with hieroglyphicks. On the front, Isis is in general the principal figure to whom offerings are made. On the architrave are represented two processions of men and women bringing to their goddess, and to Osiris, who is sitting behind her, globes encompassed with cows' horns, mitred snakes, lotus-flowers, vases, little boats, graduated staffs, and other instruments of their emblematical worship. The interiour of the pronaos is adorned with sculptures, most of them preserving part of the paint with which they have been covered. Those on the ceiling are peculiarly rich and varied, all illustrative of the union between the astronomical and religious creeds of the ancient Egyptians; yet, though each separate figure is well preserved and perfectly intelligible, we must be more intimately acquainted with the real principles of the sciences, as they were then taught, before we can undertake to explain the signs in which they were imbodied.

The sekos, or interiour of the temple, consists of several apartments, all the walls and ceilings of which are in the same way covered with religious and astronomical representations. The roofs, as is usual in Egypt, are flat, formed of oblong masses of stone resting on the side-walls; and when the distance between these is too great, one or two rows of columns are carried down the middle of the apartment, on which the huge flags are supported. The capitals of these columns are very richly ornamented with the budding lotus, the stalks of which, being extended a certain way down the shaft, give it the appearance of being fluted, or rather scolloped. The rooms have been lighted by small perpendicular holes cut in the ceiling, and, where it was possible to introduce them, by oblique ones in the sides. But some idea might be formed of the perpetual gloom in which the apartments on the ground-floor of the sekos must have been buried, from the fact, that where no side-light could be introduced, all they received was communicated from the apartment

above; so that, notwithstanding the cloudless sky and the brilliant colours on the walls, the place must have been always well calculated for the mysterious practices of the religion to which it was consecrated. On one corner of the roof there was a chapel or temple twenty feet square, consisting of twelve columns, exactly similar in figure and proportions to those of the pronaos. The use to which it may have been applied, must probably remain one of the secrets connected with the mystical and sometimes cruel service in which the priests of Isis were employed, though it is by no means unlikely that it was meant as a repository for books and instruments collected for the more innocent and exalted pursuits of practical astronomy.

The western wall of the great temple is particularly interesting for the extreme elegance of the sculpture, as far as Egyptian sculpture is susceptible of that character—for the richness of the dresses in which the priests and deities are arrayed, and even of the chairs in which the latter are seated. Here are frequent representations of men who seem prepared for slaughter or just going to be put to death. On these occasions, one or more appear with their hands or legs tied to the trunk of a tree, in the most painful and distorted attitudes.

The grand projecting cornice, one of the most imposing features of Egyptian architecture, is continued the whole length of this and the other walls; a moulding separates it from the architrave; and, being carried down the angles of the building, gives to the whole a solid finished appearance, combined with symmetry of parts and chasteness of ornament. In a small chapel behind the temple, the cow and the hawk seem to have been particularly worshipped, as priests are frequently seen kneeling before them, presenting sacrifices and offerings. In the centre of the ceiling is the same front face of Isis, in high relief, illuminated, as it were, by a body of rays, issuing from the mouth of the same long figure, which, in the other temples, appears to encircle the heavenly bodies. About two hundred yards eastward from this chapel, is a propylon of small dimensions, resembling in form that which conducts to the great temple, and, like it, built in a line with the wall which surrounds the sacred enclosure. Among the sculptures on it, which appear of the same style, but less finished than those on the large temple, little more is worthy of notice than the frequent exhibition of human slaughter by men or by lions. Still farther towards the east, there is another propylon, equally well preserved with the rest, about forty feet in height, and twenty feet square at the base. Among these sacred figures on this building, is an Isis pointing with a reed, to a graduated staff, held by another figure of the same deity, from which are suspended scales containing water-animals; the whole group, perhaps, being an emblem of her influence over the Nile, in regulating its periodical inundations.

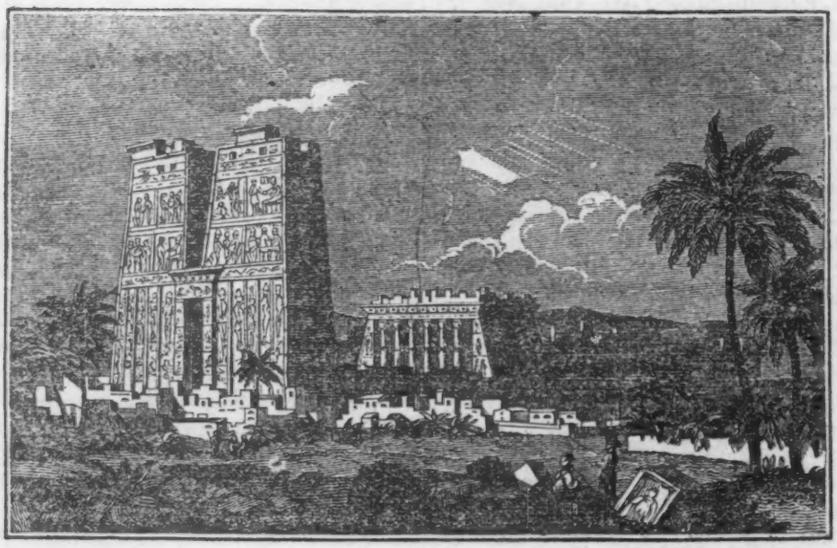
The enclosure, within which all the sacred edifices of Dendera, with the exception of the last propylon, are contained, is a square of about a thousand feet. It is surrounded by a wall, which, where best preserved, is thirty-five feet in height, and fifteen feet thick. The crude bricks of which it is built, were found to be fifteen inches and a half long, seven and three quarters broad, and four inches and three quarters thick. There have been, at certain intervals, projections of the wall or towers; but it is difficult to say whether for purposes of defence or strength.

Dr. Richardson observes, in reference to the sculptures on the temple of Dendera, that "the female figures are so extremely well executed, that they do all but speak, and have a mildness of feature and expression that never was surpassed." Every thing around appears to be in motion, and to discharge the functions of a living creature; being, at the same time, so different from what is ever seen in Europe, that the mind is astonished, and feels as if absolutely introduced to personages of the remotest ages to converse with them, and to witness the ceremonies by which they delighted to honour their gods. The temple at Dendera, says this author, is by far the finest in Egypt; the devices have more soul in them; and the execution is of the choicest description.

Edfou, the Apollinopolis Magna of the Greeks, presents several architectural remains worthy of notice. There are two temples in a state of great preservation; one of them consisting of high pyramidal propyla, a pronaos, portico, and sekos, the form most generally used in Egypt; the other is peripteral, and is, at the same time, distinguished by having, on its several columns, the appalling figure of Typhon, the emblem of the evil principle.

The pyramidal propylon which forms the principal entrance to the greater temple, is one of the most imposing monuments extant of Egyptian architecture. Each of the sides is a hundred feet in length, thirty wide, and a hundred high. Many of the figures sculptured on it are thirty feet in height, and are executed in so masterly and spirited a style, as to add considerably to the grand effect of the building. In each division there is a staircase of one hundred and fifty or one hundred and sixty steps, which conduct the visiter into spacious apartments at different elevations. The horizontal sections of each wing diminish gradually from one hundred feet by thirty, to eighty-three by twenty, as will appear to the eye from the accompanying plate; although the solidity and height of the propylon give it more the aspect of a fortress or place of defence than of the approach to a religious edifice. As an explanation of this peculiarity, we are told that the addition of these gateways to a temple was permitted as a favour to such of the ancient kings of Egypt as, for their pious and beneficent actions, became entitled to perpetuate their names in the mansions of their gods. The Ptolemys, who claimed the right of sovereignty from conquest, indulged in the same magnificence, and built porticoes, propyla, and even temples. Cleopatra, in her misfortunes, is said to have removed with the most valuable part of her property to an edifice of a very extraordinary size and structure, which she had formerly erected near the fane of Isis. Most probably, as Mr. Hamilton thinks, it was a propylon of the kind just described. Nothing could be better adapted for her purpose; inasmuch as the variety of apartments offered every convenience that could be desired, and when the small door at the bottom of the staircase was closed, it was perfectly inaccessible.

In no part of Egypt are more colossal sculptures seen on the walls of a publick building, than on the



[View of Edfau.]

larger temple at Edfou. These, we are told, are extremely well executed, and in some cases the colours are still completely unchanged. Priests are seen paying divine honours to the Scarabæus, or beetle, placed upon an altar—an insect which is said to have been typical of the sun, either because it changes its appearance and place of abode every six months, or because it is wonderfully productive. We regret to find that both the temples, though well preserved, are almost concealed among heaps of dirt and rubbish; indeed the terrace of the larger one is occupied by several mud cottages belonging to the villagers, and the interiour chambers of the sekos are indiscriminately used as sinks, granaries, or stables.

ANECDOTE OF AN INDIAN.

Leigh Ritchie, the novelist, has contributed "Some Account of the Barbarians of the North" to the London New Monthly, comprising the results of his observations during a recent journey to and residence in Moscow. We find among his notes the following Aboriginal anecdote, related to the writer by our ambassador at St. Petersburgh, Hon. William Wilkins, which possesses an interest quite dramatick:—

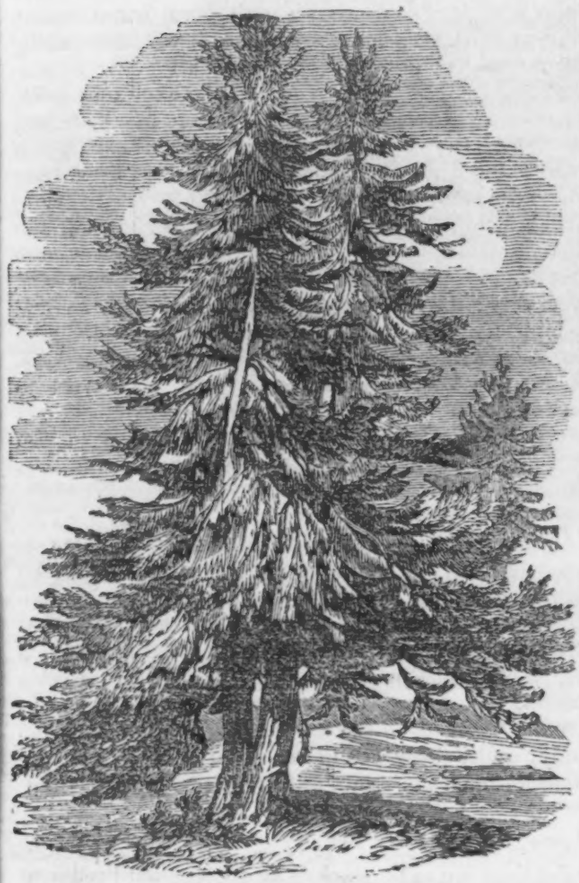
"The son of a Delaware chief was brought up from infancy as the playmate and friend of Mr. Wilkins. No difference whatever was made between the two boys; their dress, their meals, their beds, their education—all, were alike; and the lads themselves regarded one another as brothers. When young Wilkins arrived at the age when it was necessary for him to go to college, his companion was, in every respect, in appearance, in language, in feelings, an Anglo American boy; and the two friends parted in the hope of meeting again, unchanged, except in the addition of four years to their age, and a corresponding number of inches to their stature.

"In four years, young Wilkins returned to the parental home; and while crossing the threshold of the house, his tumultuous thoughts were perhaps fully as much occupied by the friend into whose arms he was about to rush, as by any member of his father's family. He caught the eye, however, of a naked Indian sitting on the bench before the door, and paused as he was about to enter. The object, though picturesque, was common, and he turned his head, without knowing why, to look again at the face of the savage. The red youth then smiled; and his question, 'Do you not know me?' explained all.

"After his friend went to college, and when he was thus thrown back, as it were, upon his own mind, the Delaware boy, as he said himself, was beset with strange wild thoughts, which he could neither understand nor describe. He felt an unconquerable longing for the liberty of the woods; a thirsting after the air of the desert; and, after struggling long and fiercely against a propensity which his habits of civilization persuaded him to be evil, and for the existence of which he could not in any manner account, he at length tore off his European dress, and fled into the wilderness. I cannot call to mind the name of this Indian; but he became a distinguished chief in the wars with the English, and was celebrated not only for bravery but for cunning. He was at length suspected of playing false on both sides; and Mr. Wilkins, in riding through a wood, saw, accidentally, the body of his early friend lying dead, and horribly mangled, at the foot of a tree. The Delaware had been murdered by his own countrymen."

Indian Death-Blast.—At Bandah, in Bundalcund, (one of the northern provinces of Hindostan,) there are numerous rocky hills, which, during the hot winds, become so heated as to retain their warmth from sunset to sunrise. The natives, at this sultry season, invariably wear large folds of cloth around their heads and faces, just leaving themselves sufficiently exposed to be able to see and breathe. This precaution is taken in consequence of the terrifick blasts which occasionally rush in narrow streams from between the hills. Persons crossed by these scorching winds drop suddenly to the earth, as if shot by a musket-ball. When medical assistance, or a supply of cold water, is instantaneously procured, a recovery may generally be expected; but if no immediate remedy be applied, an almost certain death is the result. Ed. Journal.

AMERICAN TREES.



[Spruce Tree.]

There are several varieties of the Spruce. Michaux describes four:—They are, first, the *Norway* spruce fir, one of the tallest trees of the old continent; it is straight-bodied, from one hundred and twenty to one hundred and fifty feet high, from three to five feet in diameter, and is a hundred years in acquiring its growth. Its dark foliage gives it a funereal aspect, which is rendered more gloomy by the declining of its branches towards the earth. The limbs spring from a common centre; the leaves are longer, but less numerous than those of the American species, and are slightly arched firm and acute.

Second, the *hemlock* spruce, which abounds in Canada and in the northeastern states. This tree attains the height of seventy or eighty feet, with a circumference from six to nine feet, and is uniform for two thirds of its length. But if the number and distance of the concentrick circles are a certain criterion of the longevity of trees and the rapidity of their vegetation, it must be nearly two centuries in acquiring such dimensions. When arrived at its full growth, the large limbs are usually broken off four or five feet from the trunk, and the dried extremities stare out through the little twigs which surround them. The bark of the hemlock is sometimes mixed with oak bark, and used in tanning. For this purpose it is taken from the tree in June, and half the epidermis is shaved off with a plane, before it is thrown into the mill. The Indians, also, are said to die their baskets with it.

Third, the *white* or *single* spruce. This species grows in nearly the same situations as the second. It is, however, a smaller tree, rarely exceeding fifty feet in height, and twelve or sixteen inches in diameter at three feet from the ground. The quality of the wood is rather inferiour, and it snaps frequently in burning. The fibres of the roots, macerated in water, are very flexible and tough, and are used by the northern Indians to stitch together their canoes of birch-bark, the seams of which are afterward smeared with a resin that distils from the tree.

Fourth, the *black* or *double* spruce, sometimes described, but erroneously, as the *red* spruce. Although most abundant in the Canadas and northeastern states, it is found also in New York, in Pennsylvania, and even on the Black mountain in South Carolina. The regions in which the black spruce is the most abundant are often diversified with hills, and the finest forests are found in valleys where the soil is black, humid, deep, and covered with a thick bed of moss; though crowded so as to leave a space of only three, four, or five feet, these stocks attain their fullest development which is seventy or eighty feet in height, and from fifteen to twenty inches in diameter. Their summit is a regular pyramid and when the trees are insulated it presents a beautiful appearance. The wood of the black spruce is extremely valuable, being used for the topmasts, yards, and knees of vessels: while from the young branches, are prepared the extract of spruce and spruce beer.

THE DYING WIFE.

And I must die!
I must pass away from the beautiful earth,
Where the roses bloom and the birds have birth—
Ere the rude world's blight o'er my spirit has blown,
Ere the musick of life has lost one tone;
As the dew-drops sweet from the aspen spray,
With the summer's breath I must pass away.
The maiden laughs in the sunny glade!
Ah! why doth she laugh? Her joys must fade,
All that is dearest to her, are mine,
All that is brightest, on me now shine;
There's joy for me still in the lemon-leafed bower,
Where the mocking-bird sits, in the hushed night hour:
There's joy for me still in the festal throng,
In the mazy dance, and the sparkling song;
There's a flush in my cheek, a light in mine eye,
And my heart beats warm—but I must die!

I must leave them now!
I must pass from the home of my childhood's mirth,
And my place shall be mourned at my father's hearth.
His hair is white and his eye is dim—
And who shall now speak of the glad earth to him?
And who shall now pour on his time dulled ear,
The olden lay that he loved to hear?
He will sit and pine in his dwelling lone,
For I was his all, and I shall be gone.
There is one on my heart hath a tender claim!
I have taught my soft child to lisp his name,
I forget I am dying—my pain is stayed.
I trust his words, as on hope he dwells,
But the pale lip mocks what the fond heart tells;
The cold drops stand on his manly brow—
Oh God! must I leave—must I leave him now?

I will come again!
I will come again, in the twilight gloom,
When the sad wind wails o'er my lowly tomb;
When the shade's in the bower and the star in the sky,
The early-loved scenes will I wander by:
I will pass by the hall of the glad and gay,
For they shall laugh on, though my smile be away;
Where the aged man weeps, my breath shall be there,
I will come to my child at her young-voiced prayer;
When lovely she kneels by her father's side,
His gaze resting on her, his darling and pride.
With a dark'ning shade should his brow be crossed,
As his thoughts are afar with the loved one lost;
I will live in her form, I will speak in her eye,
I will steal from his lip the half-breathed sigh;
With her silvery voice, will I sooth his pain,
I will whisper his heart, "I am come again!"

USEFUL KNOWLEDGE.

To Preserve Seeds.—The following has been recommended as a certain preventive against birds taking seeds out of the ground in gardens, &c. Mix together one pound of gas-tar, one quarter of a pound of brown spirits of tar, and one quarter of a pound of grease; into this dip some thread or twine, and draw it several times over the newly sown beds, supported a few inches from the earth, on the tops of sticks.

Budding.—In the Agricultural Journal of the Pays Bas, it is recommended to reverse the usual mode of raising the bark for inserting the buds, and to make the cross-cuts at the bottom of the slit, instead of the top, as is generally done. The bud then rarely fails of success, because it receives sufficient of the descending sap, which it cannot receive when it is under the cross-cut.

The following table presents the comparative extensibility of the different kinds of wood, the oak being considered as the standard of unity.

Ash	$\frac{13}{14}$.
Beech	$\frac{3}{4}$.
Elm	$\frac{29}{28}$.
Red or Yellow Fir	$\frac{13}{14}$.
White Fir	$\frac{6}{7}$.
Oak	1.
Pine	$\frac{29}{28}$.

Valuable to Whitesmiths, &c.—It is perhaps not generally known among mechanicks that the salt called prussiate of potash, which may be had of all the druggists, is now much used in case-hardening. The process is easy, and saves a great length of time. The method is to powder the salt, and sprinkle it upon the iron when in a state of redness; it will be found to run like oil, and when plunged into cold water the iron will be as hard or even harder than iron case-hardened in the usual way.

To Silver Ivory.—Immerse a slip of ivory in a weak solution of nitrate of silver, or lunar caustick, and let it remain till the solution has given it a deep yellow colour: then take it out and immerse it in a tumbler of clear water, and expose it in water to the rays of the sun. In about three hours, the ivory becomes black, but this black surface on being rubbed is soon changed to a brilliant silver.

To Fix Crayon Colours.—Apply drying oil diluted with spirits of turpentine, to the back of the picture: let this dry for a day or two and then spread a coat of the same mixture over the front of the picture. The paper is thus perfectly saturated, and becomes in fact an oil painting, and may be transported or handled without a frame or glass.

Gum-Elastick Inkstands.—Among the numerous uses to which Caoutchouck has been recently applied, is the formation of inkstands. The bottle instead of glass, is formed of gum-elastick, which neither injures the ink, nor is injured by it: it cannot be broken, nor can it easily be damaged. The chief object of the inventor of these inkstands was to produce something that might not injure the metallick pens now so generally used.

Rice Bread.—The best mode of making rice bread, is as follows:—One quart of rice flour made into stiff pap by wetting it with warm water, not so hot as to make it lump: when well wet, add boiling water, as much as two or three quarts; stir it continually until it boils; then add one pint of milk, when cool enough to avoid scalding the yest, and half a pint of good yest, and as much wheat flour as will make it a proper consistence for bread; put it to raise; when sufficiently risen it will be necessary to add a little more wheat flour. If baked too soft, the loaves will be hollow. The first I baked were mere shells. If you can abbreviate the receipt for use, you may; but if you do not give all this information, people will not succeed in making it good. The same mixture, rather thinner, baked in muffin-rings, makes the best muffins I ever tasted. I forgot to say the bread must stand half an hour or more in a warm place, after it is put in the baking pans, and it will rise again almost as much as it did at first.

Southern Agriculturist.

Rowing Mill.—The most advantageous mode of applying human strength, is similar to that of the ordinary manner of rowing a boat, wherein a man sits on a low bench, and with his legs extended before him, presses with his feet against an inclined board, while he pulls back a lever; because in this action, the muscular strength of the individual is greatly assisted in the effort by the weight of his body, as he throws it back. In Bockler's *Theatri cum Machinarum*, a mill of this description is figured

Cheap and Excellent Stucco.—One hundred parts of quicklime are to be slacked by degrees until reduced to the consistence of cream; five parts of white-clay previously diluted with water to a similar consistence are then to be intimately mixed with the lime and allowed to stand in a tub for twenty-four hours, stirring the mixture occasionally. Any kind of colour may now be given to it; but two parts of yellow ochre added to the mixture is found to give it an agreeable and durable teint. The walls of some buildings much exposed to wind and rain, were covered with this cement two years ago, which has not deteriorated in the least.

To Bronze Statues and Medals.—The mode adopted by a French artist, Jacob, to give to newly cast bronze the colour of the antique is—dissolve four drachms of muriate of ammonia (sal ammoniae,) and one drachm of oxalick acid in a pint of vinegar: take up as little as possible of this solution at a time on a brush, which rub on the metal (previously well cleaned) until it becomes dry, repeating the operation, till the required depth of teint is obtained. To expedite the drying, the process may be conducted by the heat of a stove or in the sunshine.

Composition of Bronze.—One fourth of a pound of pure copper, six pounds of zinc, and four pounds of tin. Melt the copper first, then add the tin and zinc.

Cheap Paint.—Gas-tar mixed with yellow ochre makes an excellent green paint, well adapted for preserving coarse wood-work, and iron rails.

MISCELLANY.

Gold Veins in North Carolina.—At a meeting of the Sheffield Literary and Philosophical Society, Dr. Longstaff, who has been out, during the last twelve months, as the agent of a company of British mine adventurers, to investigate the gold veins of North Carolina, stated that the gold region stretches from the shores of the Atlantick, in the direction of Carolina, through the country towards the Pacifick ocean; and that, judging from appearances, this immense track promises to yield supplies, such as have not been equalled by the most famous gold countries of antiquity. The precious metal is generally found in a matrix of quartz, and in veins, often running in the direction of northeast and southwest, there being generally one leading vein, and on each side a parallel satellite. In some cases, rich brancnes pass off at right angles; in others, the ore is ramified in every way. It is sometimes enveloped in a rake of talcose slate, passing through the auriferous quartz; in other instances, disseminated in minute parts through oxyde of iron; and contrary to what might have been supposed, judging from the effect of other metals, the sulphuret of iron, or martial pyrites, usually indicates a rich locality. The proportions of the precious metal to the quartzoze, or other matrix, are amazingly great, the minimum yield of the ore affording a large profit upon the capital invested, while some of the richer sorts (of which Dr. Longstaff laid specimens on the table) gave almost incredible results.

Many of the inhabitants of Concord have pieces of pure gold of various weights, one of which weighs twenty-eight pounds. The beds where the gold is discovered, in that locality, are of gravel, and very extensive, covered with water in the winter months, but dry in summer. The manner for searching for gold is, to take shovels and turn over the gravel, always advancing as it is turned back, and picking up what is discoverable to the eye, by which thousands of small grains are lost, as the fingers cannot separate them from the sand. By working this over again with quicksilver, large quantities may be obtained. No machinery is required, or smelting process. The first mine was found by a son of Mr. Reed, who, in watering his horse at a creek, discovered a piece of gold quite pure. Two years after, Mr. Reed, with two partners, pursued the search for gold, with six black boys, during the short period of only six weeks. In each of the two first years they obtained the value of seventeen thousand dollars, besides what was stolen from the streams, supposed to be half as much more. No attempt has been made to open the hills, as the persons there are totally unacquainted with the subject of mining. Messrs. Morton and Bedford, of Baltimore, purchased a small tract of about three hundred acres, joining the lower end of Reed's purchase and mine, for which they paid seven dollars an acre. Governour Mercer stated, that they had analyzed the sand and gravel, and found it worth a guinea a bushel, after the lump gold was picked out. The gold, as found, is worth nineteen dollars an ounce, while the best East India and African gold dust is not worth more than from twelve to sixteen dollars. Mr. Thomas Moore got some hickory-nuts, and in looking for a stone to break the shell, he went to a tree that had been blown down, and picked up the first stone that he met with in the fresh turned-up earth, perceiving it heavy, he washed it, and it turned out to be a piece of solid gold, which he sold for four hundred and fifty dollars! He then set some men to work, and they made from two to five dollars a day each. Some of it has been sent to the mint of the United States, where they exchange it for eagles ready coined, weight for weight; but the goldbeaters give a still better price, namely, four per cent., it is so pure and malleable.

Curious Discovery.—In 1834, a subterranean Indian village was discovered in Nacooche valley, in Georgia, by gold miners, whilst excavating a canal for the purpose of washing gold. The depth to which it is covered varies from seven to nine feet; some of the houses are imbedded in a stratum of rich auriferous gravel. They are thirty-four in number, built of logs from six to ten inches in diameter, and from ten to twelve feet in length. The walls are from three to six feet in height, forming a continuous line or street of three hundred feet. The logs are hewed and notched as at the present day. The land beneath which they were found, was covered, at its first settlement by the whites, with a heavy growth of timber, denoting the great antiquity of those buildings, and a powerful cause which submerged them. Cane baskets and fragments of earthenware were found in the rooms. The houses are situated from fifty to one hundred yards from the principal channel of the creek. A great number of curious specimens of workmanship have been found in situations which preclude the possibility of their having been moved for more than a thousand years; among these, half a crucible, of the capacity of nearly a gallon, ten feet below the surface, and immediately beneath a large oak tree, which measured five feet in diameter, and must have been four or five hundred years old. The soil is diluvial, or what may be termed table land. The stratum of quartz gravel in which the vessel was imbedded, is about two feet in thickness, resting on decomposed chlorite slate. It is not difficult to account for the deposite of those substances in an alluvial soil, for the hills are generally very high and precipitous, and from the immense quantity of rain which falls, the streams are swollen to great height, sweeping every thing with them, and frequently forming a deposite of several feet in thickness in a season. A vessel resembling a double mortar was found in Duke's creek, about five inches in diameter, and the excavation on each side nearly an inch in depth, basin-like, and perfectly polished. It was made of quartz, which had been semi-transparent, but had become stained with the iron which abounds in quantity in all the country. In the bottom of each basin was a small depression, half an inch in depth and about the same in diameter. What its use could have been, is difficult to conjecture. The high finish, and its exact dimensions, induce the belief that it is the production of a more civilized people than the present race of Indians.

Petrified Buffalo.—This extraordinary curiosity was discovered about two years since, by some trappers, belonging to Captain Bent's company, lying on the side of one of the beaver dams of the Rio Grande of the north, (a stream emptying itself into the gulf of California,) whose waters, it is said, possess petrifying qualities in an eminent degree, its shores abounding in specimens of animal and vegetable productions in a petrified state. The petrified buffalo is described by those who have seen it, to be as perfect in its petrifaction as when living, with the exception of a hole in one of the sides, about four inches in diameter, around which the hair has been worn off, probably by the friction of the water, in which it must have lain for ages past to have produced such a phenomenon. The hair on the hump of the shoulders, neck, forehead and tail, though converted into almost a smooth surface, may be easily discerned. The horns, eyes, nostrils, mouth, and legs, are as perfect in the stone as in their pristine state.

The country in which this rare specimen was found, is inhabited by the Exteaux, a roving tribe of savages, who subsist, a great portion of their lives, on insects, snakes, toads, roots, &c. This tribe being particularly hostile to the whites, renders the acquisition of this curiosity an undertaking not a little hazardous; notwithstanding this and many other difficulties to be surmounted, such as distance, expense, &c., our enterprising citizen, Captain Charles Bent, contemplates procuring and bringing it to the United States with him, on his return from Santa Fe, during the ensuing autumn. We heartily wish him success in his praiseworthy undertaking.

Eruption of Fishes. Baron Humboldt gives an account of a wonderful eruption of fishes that sometimes takes place from the volcanoes of the kingdom of Quito. These fishes are ejected in the intervals of the igneous eruptions in such quantities as to occasion putrid fevers by the miasmata they produce. They sometimes issue from the crater of the volcano, and sometimes from lateral clefts, but constantly at the elevation of between two and three thousand toises above the level of the sea. In a few hours, millions are seen to descend from Cotopaxi with great masses of cold and fresh water. As they do not appear to be disfigured or mutilated, they cannot be exposed to the action of great heat. Humboldt thought they were identical with fishes that were found in the rivulets at the foot of the volcanoes, and to which he assigns the name of Pimelodus Cyclopum.

Herculaneum.—According to the Bulletino dell' Instituto, the excavations at Pompeii and Herculaneum seem to be carried on spiritedly by the Neapolitan government, but the chief discovery we read of is an inn at Herculaneum. Only part of it has yet been cleared, which is described as consisting of two divisions; the first offering a large vestibule, with a courtyard for the accommodation of domestick animals. The court is surrounded by pillars which form the front of the covered corridors. The pavement is in Mosaick work, representing flowers. The second is a court of carts, and this court is flanked by pilasters forming vaults for the reception of merchandise, and through which lies the passage to the sleeping rooms. The lower stories, next the seashore, have not yet been cleared.

Pompeii.—It is said that a house, rich in antiquities, has been uncovered lately in Pompeii, in the street of Mercury. Upon the exteriour are paintings of Narcissus and Endymion. Within were found four silver vases containing a large quantity of medals, among which were twenty-nine of gold of the first Roman emperours. Two other vases were found richly chased with relievoes of Cupids, Centaurs, Bacchus, and Ceres.

Interesting Relick of Antiquity.—In the museum at Naples is the bronze cock of a reservoir, discovered at Capri during the excavations which were made in the palace of Tiberius. Time having firmly cemented the parts together, the water in its cavity has remained hermetically sealed during seventeen or eighteen centuries. Travellers are shown this curious piece of antiquity, which being lifted and shaken by two men, the splashing sound of the contained fluid is distinctly heard.

Eggs Preserved for Three Hundred Years.—Three eggs were found in the wall of a chapel, which was built upwards of 300 years ago, near the Lago Maggiore. These were imbedded in the mortar of the wall, and upon attentive examination, they were found to be quite fresh. It has been long known, that the eggs of birds, when covered with a thin coating of wax, retain their vital principle, and have been hatched many months after, the wax having been dissolved by alcohol.

LITERARY NOTICES.

Among the numerous books which have issued from the press since the publication of our last number, we would recommend to our readers the following, as particularly worthy of notice:—

The Natural History of Insects, Part Second, forming the seventy-fourth volume of Harper's Family Library. The Family Library is now well known in every part of the United States; the manner in which the publishers have fulfilled their promise to the publick, to introduce into it none but works of the highest character, has rendered the Library a desideration to every man. It now embraces histories of the Holy Land, of Egypt, Poland, India, Arabia, Persia, Numidia, Abyssinia, Ireland, and Africa; the lives of Washington, Napoleon, Alexander, Nelson, Byron, Newton, Frederick, Cromwell and Mary of Scots; Combe and Ticknor on Physiology and Diet, Abercrombie on the Intellectual Powers, Euler on Philosophy, and many others. Many of these books are embellished with fine wood engravings, of which those found in the Magazine, under the head of Architectural Monuments are specimens. The second volume of the History of Insects completes the treatise commenced in Part VIII, of the Family Library, on this extensive and interesting branch of natural history. We say extensive, and well may it be called so, as even now more than one hundred thousand species of insects are already collected, and are known to exist in the different cabinets of entomologists, and according to the best data, there are no less than four hundred thousand living species. The volume before us among other interesting topicks, contains much that is valuable and curious in regard to the silkworm; the mode of rearing and of feeding it, with remarks on the cultivation of the mulberry-tree, &c., a subject now attracting a great deal of attention in the United States.

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A Life of Washington, by J. K. Paulding, in two volumes, forming Nos. 75 and 76 of Harper's Family Library. A life, not of Washington, general-in-chief of the armies of Congress, or of Washington, president of the United States, but, of Washington, the *father of his country*. Written, to use the words of its author, because it appeared to him that the life of Washington furnished an invaluable moral example to the youth of his country, and that its introduction to their notice could not but be useful to the rising generation of his countrymen, by holding up to their view the character and actions of a man, whose publick and private virtues, equally furnish the noblest as well as safest objects for their guide and imitation; dedicated, *to the pious, retired, domestick mothers of the United States*. And well has Mr. Paulding performed his task. The book is the most interesting life of Washington we have ever read; the style of it is pure, concise, and familiar; it is written in a true American spirit, it abounds with new and interesting anecdotes, and no opportunity of conveying a lesson of pure morality is left unimproved. The volumes are embellished with engravings of Washington from the bust of Ceracci, a view of the birthplace of Washington, a view of York town and of the spot where Cornwallis laid down his arms, and of the new tomb at Mount Vernon; the last three pictures by Mr. J. G. Chapman. May the Life of Washington find a restingplace in every house.

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The Philosophy of Living, or the way to enjoy life and its comforts, by Caleb Ticknor, A. M., M. D. The 77th number of the Family Library, is the book whose title is given above. It is a plain, judicious, and sensible treatise on a subject of vital importance to every one—written by a well educated physician, who combines in it the results of study, and of close and continued observation. The style of the work is easy and familiar; being written for general use, all technical terms are avoided so that it is readily understood by every one.

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The Old Indian Chronicle, by S. G. Drake—Boston, *published at the Antiquarian Institute, 56 Cornhill*. This "Chronicle," comprises five very rare tracts which were printed in London in 1676, all of which relate to the "bloody Indian war," as it is called, of King Philip. Attached to these is a chronicle of Indian events, from the discovery of America by Columbus, to the present time. This book is extremely curious, and worthy the attention of those who study the early history of their country. Only five hundred copies of it are printed.

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Spain Revisited, by the author of A Year in Spain, *in two vols. Harper and Brothers.* A lively and interesting picture of Spain and Spanish manners in 1834, by a gentleman, whose "*Year in Spain*" has already made him favourably known to many of our readers. The present book is highly creditable to Lieut. Slidell; we think it far superiour to his "American in England," and fully equal to his first production. The engravings in it would do credit to any annual.

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Ovid, translated by *Dryden, Pope, Congreve, Addison, and others, in two vols. Harper and Brothers.* The Classical Family Library, of which this book forms a portion, has now reached its 21st number. The object of the publishers in commencing it was to put within the reach of all, the treasures locked up in the Greek and Latin languages; with this view they have already issued in cheap form, the best translations extant, of the works of Xenophon, Demosthenes, Sallust, Cesar, Cicero, Virgil, Œschylus, Sophocles, Euripides, Horace and Ovid, illustrated with engravings of the different authors. The same publishers announce translations of Herodotus and Homer.

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To those who are fond of the old English novels, the new editions of *Humphrey Clinker*, and of *Tom Jones* present peculiar attractions. They are printed in the Harpers' best style, with a clear type, on fine paper, and are embellished, the former with four, and the latter with eight illustrations, from the designs of that prince of fun, Cruikshank.

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Paris and the Parisians, by Mrs. Trollope. *Harpers.* A spirited sketch of French manners. Mrs. Trollope having looked with no friendly eye upon the blemishes, in the manners, and habits of the Americans, a full account of which she has given in her "Domestick Manners," returned to Europe; flattered probably by the notice which her libels have attracted, she crossed the English channel, to make her observations on the French. The results to which she arrived are given in this book. She seems, however, to have inhaled a little of the atmosphere of refinement, which floats over Paris, as her style has lost somewhat of its asperity. The illustrations in this book are true to nature.

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The third volume of the Christian Library commence with Hardy's tour to the Holy Land. We are happy to learn that this valuable publication will repay its worthy publisher, Mr. George, for the money expended upon it.

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Sallust's Jugurthine War, and Conspiracy of Catiline; with an English commentary and Geographical and Historical index, by Charles Anthon, LL. D. Sixth edition, corrected and enlarged. Harper and Brothers. A new edition of this popular author, with a commentary, &c., by one of the ripest scholars of the age. The work is beautifully printed on fine paper, and is one of the most attractive school-books we have ever seen.

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The proprietor of the Philadelphia Saturday Courier proposes to issue a new paper in the quarto form, to be called the Philadelphia Mirror. In addition to other attractions, it will be embellished with maps of the different states of the Union; it will be well worthy the patronage of the publick.

WASHINGTON'S HEAD QUARTERS, at Cambridge, Mass.

J. H. HALL

WASHINGTON'S HEADQUARTERS AT CAMBRIDGE.

THE house occupied by General Washington as his headquarters, during the memorable siege of Boston, in 1775 and 1776, is situated about halfway between the Cambridge colleges and Mount Auburn, on the road leading from Harvard university to Waltham. The house is a large wooden mansion, with spacious outbuildings and grounds; it stands a little back from the road, and the front of it commands a good view of Charles river, which gracefully winds through the adjacent meadows at the distance of about a quarter of a mile. At this mansion and at Winter hill, Washington spent most of the time that the British, to use their own expression, "were fairly blocked up in Boston," the town where numerous outrages had been perpetrated by the English soldiery, upon the unarmed and inoffensive inhabitants; all of which, however, were duly remembered. It may not be uninteresting to our readers, to review, in this place, some of the more prominent events which led to the siege.

As early as 1765, the passage of the stamp-act had caused a great deal of excitement—some acts of violence also were committed by the mob, but these were discountenanced by the leading whigs, who thought such acts would infallibly injure a just cause. Their pens, however, were not idle; and in the Boston Gazette of March 17th, 1766, a writer remarks:—"Since the stamp-act imposed on us is unconstitutional, shall we not then, all as one man, join in opposing it, and spill the last drop of our blood, if necessity should require, rather than live to see it take place in America!" And again, "any one after a thorough search and consideration, would, rather than lose his liberty, be bored through the centre of life with the fatal lead." On the 19th of May, news was received at Boston that the stamp-act was repealed.

On the 5th of March, 1770, the animosity of the Bostonians against the "*redcoats*" was increased a little by the murder of Crispus Attucks, Samuel Gray, Jonnes Caldwell, Samuel Maverick and Patrick Carr; and their funeral solemnities which took place on the 8th, brought together the largest concourse of people that probably had ever assembled in America. The duty on tea, of three pence per pound, imposed on the colonists without their consent, had been met by combinations among the inhabitants not to pay the duty, and not to use the article. The British East India company, however, applied to the British government, and obtained a license to export a quantity of tea to America, not exceeding six hundred thousand pounds; they were discharged from the payment of any custom-house duties whatever in the kingdom, but were subject, however, to the payment of the three pence per pound duty in America. The first cargo of this tea arrived in November; and on the next morning, the following notice was distributed through the town:—

"FRIENDS, BRETHREN, COUNTRYMEN!

"*That worst of plagues, the detested* TEA, *shipped for this port by the East India company, is now arrived in this harbour. The hour of destruction, or manly opposition to the machinations of tyranny, stares you in the face. Every friend to his country, to himself, to posterity, is now called upon to meet at Fanueil Hall, at nine o'clock this day, (at which time the bells will ring,) to make a united and successful resistance to this last, worst, and most destructive measure of administration.*

"Boston, Nov. 29, 1773."

The meeting thus called was fully attended; resolutions were passed against those who had imported tea, and provision was made for the disposal of the vessels which were expected to arrive. The assembled body voted "to carry their votes and resolutions into execution at the risk of their lives and property." About the first of December, another vessel arrived with tea, and the consignees of the cargoes were ordered to send it back. This, however, was not done, and on the 16th of December, the vessels which contained it were boarded by a party disguised as Indians, the chests of tea were broken open, and in less than two hours, two hundred and forty chests, and one hundred half-chests, were staved and emptied into the dock. A portion of this tea, which was brought away in the shoes of one of the Indians, is still preserved at the Boston Atheneum.

The next important event was the passage of the Boston port bill, to which George III. assented on the 31st of March, 1774: by this bill, the landing and discharging, lading or shipping, of goods at Boston, were discontinued. The news of this bill arrived at Boston about the 11th of May; and on the 13th, the following vote was passed at town meeting:—"VOTED, *That it is the opinion of this town, that if the other colonies come into a joint resolution to stop all importations from Great Britain, and exportations to Great Britain, the same will prove the salvation of North America and her liberties. On the other hand, if they continue their exports and imports, there is high reason to fear that fraud, power, and the most odious oppressions, will rise triumphant over right, justice, social happiness, and freedom.*"

About this time, General Gage arrived to govern the province. Hutchinson retired; troops also were constantly coming in, and fortifications were thrown up on Boston Neck. In September, a detachment went into the country and took from a powder magazine, on Quarry Hill, about two hundred half-barrels of powder, which belonged to the province;

another detachment brought off two fieldpieces from Cambridge. The people armed themselves and assembled, but finding no enemy to contend with, returned to their homes. On the other hand, a party of provincials in the province of New Hampshire, attacked the fort at Newcastle, captured the garrison, and took from them one hundred barrels of powder, some small-arms, and sixteen pieces of cannon, all of which were secured. These facts, though trivial in themselves, were of the utmost importance when considered in relation to the great events which were soon to follow.

The next important step was that taken by the British on the 15th of April. About eight hundred soldiers left Boston in the night-time, in order to destroy some military stores collected by the provincials at Concord. Their object, however, had been suspected by the *committee of safety*, and reports of their movements had been sent to the interiour. The route taken by the British, led them through West Cambridge to Lexington, which lies about twelve miles to the northwest of Boston. Concord being situated in the same direction, six miles from Lexington. Their route was undisturbed until their arrival at Lexington, when a drum was heard beating to arms, and a company of provincials were discovered. The British commander, Major Pitcairn, rode up to them and cried out, "Disperse you rebels—lay down your arms and disperse." Not being obeyed, he commanded his troops to fire: the provincials received the fire without flinching; and kept their ground till another discharge from the enemy proved fatal to several of them; on this, part of the company, if not all, returned the fire, and then dispersed in different directions. The British now continued their march to Concord and arrived there about nine o'clock: here they again fired upon the militia who had assembled, and having destroyed some provisions and stores, commenced their return to Boston. But now retributive measures awaited them; to use the words of the distinguished novelist Cooper: "In place of the high and insulting confidence with which the troops had wheeled into the streets of Concord, they left them when the order was given to march, with faces bent anxiously on the surrounding heights, and with looks that bespoke a consciousness of the dangers that were likely to beset the long road that lay before them. Their apprehensions were not groundless. The troops had hardly commenced their march before a volley was fired upon them from the protection of a barn; and as they advanced volley succeeded volley, and musket answered musket, from behind every cover that offered to their assailants. At first, these desultory and feeble attacks were but little regarded; a brisk charge, and a smart fire for a few moments never failing to disperse their enemies, when the troops again proceeded for a short distance unmolested. But the alarm of the preceding night had gathered the people over an immense extent of country; and having waited for information, those nearest to the scene of action were already pressing forward to the assistance of their friends. There was but little order and no concert among the Americans; but each party, as it arrived, pushed into the fray, and hanging on the skirts of their enemies, or making spirited though ineffectual efforts to stop their progress. On either side of the highway, along the skirts of every wood or orchard, in the open fields, and from every house or barn, or cover in sight, the flash of fire-arms was to be seen, while the shots of the British grew, at each instant, feebler and less inspirited." Their ranks now became confused, when, fortunately for them, they were reinforced by Lord Percy with a thousand men; this enabled them to reach Charles river that evening; and the next day all were removed to Boston. The loss of the Americans was forty-nine killed, thirty-six wounded, and three missing; of the redcoats, seventy-three killed, one hundred and seventy-four wounded, and one hundred and twenty-six missing.

The Americans continued to come to the support of their brethren, and in June their army consisted of fifteen thousand men, commanded by General Ward. On the 17th of June was fought the battle of Bunker's Hill, (already detailed in this Magazine;) after this battle, the main body of the British troops was stationed on Bunker's Hill; the other division of it was deeply entrenched, and strongly fortified on Boston Neck. The American army lay on both sides of Charles river; its right occupying the high ground around Roxbury, whence it extended towards Dorchester, and its left, covered by Mystick river, a space of at least twelve miles.

General Washington took command of the army on the 2d of July, 1775; and General Gage, having resigned, he was replaced by General Howe, who was completely shut up in Boston, and compelled to pass the winter in idleness. General Washington, however, becoming tired of this inactivity, wished to make an attack on them; but a council of war being almost unanimous against this measure, he reluctantly abandoned it.

"The effective regular force of the Americans, now amounted to upwards of fourteen thousand men: in addition to which the commander-in-chief called out about six thousand of the militia of Massachusetts; With these troops he determined to take possession of the heights of Dorchester, whence it would be in his power greatly to annoy the ships in the harbour, and the soldiers in the town. By taking this position, from which the enemy would inevitably attempt to drive him, he expected to bring on a gene-

ral action, during which he intended to cross over from the Cambridge side, with four thousand chosen men, and attack Boston. To conceal his design and to divert the attention of the garrison, a heavy bombardment of the town and lines of the enemy was begun on the evening of the 2d of March, 1776, and repeated on the two succeeding nights. On the night of the 4th, immediately after the firing began, a considerable detachment, under the command of General Thomas, passing from Roxbury, took silent possession of Dorchester heights. The ground was almost impenetrably hard, but the night was mild, and by labouring with great diligence, their works were so far advanced by morning, as to cover them, in a great measure, from the shot of the enemy. When the British, after daybreak, discovered these works, which were magnified to their view by a hazy atmosphere, nothing could exceed their astonishment. No alternative now remained but to abandon the town, or to dislodge the provincials. General Howe, with his usual spirit, chose the latter part of the alternative, in which design he was foiled by a tremendous storm. A council of war was called next morning, and it was agreed to evacuate the town as soon as possible. A fortnight elapsed before this measure was effected. Meanwhile, the Americans strengthened and extended their works; on the morning of the 17th of March, the British discovered a breastwork that had been thrown up in the night, at Nooks Hill, Dorchester, which perfectly commanded Boston Neck and the south part of the town. Delay was no longer safe: by four o'clock in the morning, the king's troops began to embark, and before ten, all of them were under full sail; leaving behind them stores to the value of thirty thousand pounds. As the rear embarked, General Washington marched triumphantly into Boston where he was joyfully received as a deliverer."

It is now many years since we rambled over the grounds which were the seat of the scenes described. Time, and the levelling hand of modern improvement, have done much to erase all marks of the struggle. A few years ago, Governour Hutchinson's house was still standing, and on Boston common, you might perceive the spot where the troops of Earl Percy were encamped. Brattlestreet church presents in its front an iron monument of the bombardment of 1776, and the entrenchments on Dorchester heights are tolerably preserved. In ranging also over the diversified country around Boston, you frequently meet with gentle elevations and slight depressions, which mark the lines of the American encampment. But most of the memorials, like most of the actors in those scenes, have passed away.

Exemplary crimes require exemplary justice.

THE NEW HOLLANDERS.

"The proper study of mankind is man."

The New Hollanders are of the middle height, few being of lofty stature; the women are small and well made, as indeed is generally the case with the males; the hands and feet are small, the shoulders finely rounded, but the belly is frequently protuberant and the arms long: the features are not unpleasant in youth: in some women, the smile may be considered fascinating, which, added to an easiness of manner and a harmonious voice, (especially pronouncing the English language,) has rendered several of the unfortunate aborigines favourites with the white men. The colour of the skin and hair is in general black, but some tribes have been seen of lighter colour, approaching that of a malay with hair of a reddish cast. Some have large beards, but many pluck out the hair by the roots. As is the case with all savages, the hair is the principal part for decoration: some divide the hair into small parcels, each of which is matted together with gum, and formed into lengths like the thrums of a mop: others, by means of yellow gum, fasten on the head the front teeth of a kangaroo, the jaw-bones of a fish, human teeth, feathers, pieces of wood, tails of dogs, &c. Oil of any quality is used with avidity for preserving the skin from moschetoes, &c., and the breasts, arms, back, &c., are covered at an early age with scars or wealed cicatrices of every variety of form. The males of most tribes have the front tooth struck out on attaining puberty, and the women are frequently observed with a joint of the little finger cut off. When going to war, or grieving for a deceased friend, or occasionally even for ornament, white and yellow pigments are applied in streaks over the whole body, according to the taste of the decorators, such as a large white circle round each eye, waiving lines down and across the thighs and legs. In general it may be said, that the whole of the Aborigines of this vast island are of the same stock, though it is not a little singular that their language differs so much, that tribes within short distances of each other, unless inhabiting the bank of the same river, are quite strangers to each other, while almost every large community or family as they may be termed, has its own peculiar dialect. Of their numbers, it is difficult to form a correct idea; depending however, as they do, entirely on the chase, or fishing, or on gum, or bulbous roots, and subject to the effects of long droughts, the country is very thinly peopled, and their number cannot exceed five thousand. In some places, as in Cumberland county, no houses are constructed, an overhanging rock, or a slip of bark placed upright against a tree, serving for temporary shelter. To the northwest and southwest, houses have been found rudely constructed of bark, but without any kind of furniture or ornament. In many places a log of wood, or a wide slip of bark, tied at each end and stuffed with clay, is the only mode of crossing a river or arm of the sea, while in other parts a large tree, roughly hollowed by fire, forms the canoe. The nearest approximation to ingenuity is the fishing net, prepared by the women from fibres or grassy filaments. Their only cutting implements are made of stone, sometimes of jasper, fastened between a cleft stick with a hard gum. Their arms consist solely of the *spear*, *boomerang*, several kinds of *waddies* or *nullah-nullah*, as mall stone *tomahawk*,

and *bark shield*, I do not think bows and arrows have ever been seen. The spear is about ten feet long, as thick as a man's finger, tapering to a point, sometimes jagged or barbed, and hardened in the fire: this they can throw from fifty to sixty feet with great precision, the impetus being much increased by the use of the *womera* or *throwing stick*, which is a piece of wood about three feet long, three inches broad at one end, and going off to a point at the other to which a sort of hook is fastened; the hook is inserted into a small hole at the end of the spear and the *womera* being grasped at the broad part, acts somewhat on the principle of a sling, enabling a powerful man to send a spear, some say one hundred yards. The *boomerang* is still more curious; it is of a curved form made of a piece of hard wood, thirty or forty inches long, two and a half to three inches wide at the broadest part, and tapering away at each end nearly to a point; the concave part is from one eighth to one fourth of an inch thick and the convex portion is quite sharp. A native can throw this simple instrument forty or fifty yards, horizontally skimming along the surface not more than three or four feet from the ground, without touching which, it will suddenly dart into the air to the height of fifty or sixty yards, descending a considerable curve and finally fall at his feet! During the whole of this evolution the *boomerang* keeps turning with great rapidity like a piece of wood revolving on a point, and with a whizzing noise. Lieut. Breton (who has paid much attention to the Aborigines) justly observes that it is not easy to comprehend by what law of projection, the boomerang is made to take the singular direction it does. In the hands of an European it is a ticklish implement as it may return and strike himself, but the native can inflict with it the most deadly wounds on others. The *waddie* and *nullah-nullah* are clubs of different sizes and solidity: they are used in close contests: and it is extraordinary to observe two of the Aborigines fighting: each holds out his head to receive a most tremendous blow from the other, and they thus continue giving blow for blow till one, or perhaps both of them, fall senseless. The *tomahawk* is a piece of sharpened stone, fixed in a cleft stick with gum: with this they cut notches in the trees and ascend them to the height of sixty feet, though without a branch, and far too thick to be clasped. Their form of government is patriarchal; each tribe consists of from thirty to fifty men, women and children, (sometimes more,) and has its own territory of about twenty or thirty square miles, on which no other tribe is allowed to encroach. It is probable that trespassing on each other's grounds is one of the main causes of their frequent quarrels, war being the occupation in which they delight. No laws or regulations for the government of the country have been discovered; polygamy is practised; women are treated in the most inhuman manner, wives being procured from the adjacent tribes by stealing on the encampment during the night, beating a young girl on the head till she falls senseless, when her future spouse drags her off through the bushes, as a tiger would its prey.

Too many instances have occurred to permit us to doubt that cannibalism is protracted among many of the Australian tribes, and in a manner the most revolting; not only are their enemies slain in war eaten, as are also those Europeans who have fallen into their power, but numerous examples have occurred of the father killing and eating his own offspring! Hunger long continued, intense, ravenous hunger, is the excuse made for such barbarism; they have been seen to bleed themselves, make a sort of cake with the blood, and then greedily devour it. Of religion, no form, no ceremonial, no idol has ever been discovered: but they possess many superstitions. When one of their own tribe dies, they invariably destroy a native of another tribe: why or wherefore is not known. They have strange ideas of futurity, and the whites are considered reanimated beings, who had formerly been their ancestors. The dead are buried generally in graveyards of considerable extent, the earth being elevated in an oval shape: sometimes they are burned.

In an affray that took place on the Wollombi between two tribes, four men and two women of the Comleroy tribe were slain: Lieut. Breton describes the ceremony of their interment as follows: the bodies of the men were placed on their backs in the form of a cross, head to head, each bound to a pole by bandages round the neck, middle, knees and ankles, the pole being behind the body: the knees of the two women were bent up and tied to the neck, while their hands were bound to their knees: they were then placed so as to have their faces downward: in fact they were literally packed up in two heaps of earth, each in the form of a cone, about three feet high, and were removed from the cross: the supposed inferiority of the women forbidding their being interred with the men. The neatness and precision observed with respect to the cross and cones are very remarkable, both being raised to the same height, and so smoothly raked down that it would puzzle the nicest observer to discover the slightest inequality in the form. The trees for some distance around to the height of fifteen or twenty feet, are carved over with grotesque figures, meant to represent kangaroos, emews, opossoms, snakes, &c., with rude representations also of their different weapons. Round the cross, they made a circle about thirty feet in diameter, from which all rubbish was carefully removed, and another was made outside the first so as to leave a narrow interval between them: within this interval there were laid pieces of bark, each piece touching the rest in the same way that tiles do. The devil they say will not leap over the bark and cannot walk under it! They will not pass a grave or graveyard at night, and the name of the deceased is not again mentioned by his tribe. Their *corrabaries*, or nightly meetings, at the full moon, resemble somewhat the devil-worship prevalent among the mountain-tribes of Ceylon.

The Aborigines of New Holland have an instinctive aversion to labour, very few instances having been known of their continuing for any length of time as agricultural servants. As constables in aid of the police they are sometimes employed, and being excellent shots, and possessing a keen scent and sight, for tracing runaway prisoners in the forest, their services are very useful. As an instance of their keen sight and sense, we will state the following:—

A settler was missing from his small farm. His convict overseer gave out that he had gone off privately to England, and left the property to his care. This was thought extraordinary as the settler was

not in difficulties, and was a steady prudent man; the affair however was almost forgotten when, one Saturday night, another settler was returning with his horse and cart from market. On arriving at a part of the fence, on the roadside near the farm of his absent neighbour, he thought he saw him sitting on the fence; immediately the farmer pulled up, hailed his friend, and receiving no answer got out of the cart and went towards the fence; his neighbour as he thought quitted the fence, and crossed the field towards a pond, in the direction of his home which it was supposed he had deserted. The farmer thought it strange, but returned home. The next morning he went to his neighbour's cottage expecting to see him, but saw only the overseer, who laughed at the story, and said that his master was by that time near the shores of England. The farmer, however, was dissatisfied and entered a complaint with a magistrate, adding that he feared foul play. A native black, attached to the station as a constable, was sent with some mounted police and accompanied the farmer to the rails where the latter thought he saw, the evening before, his deceased friend. The spot was pointed out to the black, without showing him the direction which the lost person apparently took, after quitting the fence. On close inspection, a part of the upper rail was observed to be discoloured; the black scraped it with a knife, smelt of it, and tasted it. Immediately after, he crossed the fence, and took a straight direction for the pond near the cottage; on its surface was a scum, which he took up in a leaf, and after tasting and smelling, he declared it to be "*white man's fat.*" Several times, somewhat after the manner of a bloodhound, he coursed round the lake; at last, he darted into the neighbouring thicket, and halted at a place containing some loose and decayed brushwood. On removing this, he thrust down the ramrod of his musket into the earth, smelt of it, and then desired the spectators to dig there. Instantly spades were brought from the cottage and the body of the settler was found, with his scull fractured and presenting every appearance of having been immersed in water. The overseer who was in possession of the property of the deceased and who had invented the story of his departure for England, was committed to jail, and tried for murder. He was found guilty upon circumstantial evidence, sentenced to death and proceeded to the scaffold, protesting his innocence. Here, however, his hardihood forsook him: he acknowledged the murder of his late master: that he came behind him when he was crossing the identical rail on which the farmer fancied he saw the deceased, and with one blow on the head, killed him, dragged the body to the pond and threw it in: but after some days, took it out again and buried it where it was found. The sagacity of the native black was remarkable: but the unaccountable manner in which the murder was discovered, is one of the inscrutable dispensations of Providence.

Compiled from Martin's Australasia.

GIANT FERN.—At Illawarra, New Holland, the fern shoots up its rough stem to the height of fifteen or twenty feet, as thick as a boat oar, it then suddenly throws out a number of leaves in every direction, each four or five feet long, and exactly similar in appearance to the common fern.

SWIMMING.

THE specifick gravity of the human body during life, is, in most cases, nearly the same with that of river-water, and coincides more exactly with that of sea-water; so that there are probably but few persons who would not float very near the surface of the sea in calm weather. Corpulent people are bulk for bulk, lighter than those of sparer habits; for the adipose membrane, or fat of animals, is inferiour in specifick gravity to water; while lean flesh, unless the blood and other juices are drained from it, is of higher specifick gravity than water, and bone is proportionally much heavier than soft parts of the body. Hence, it might be inferred that the power of floating on water does not depend entirely on the relative specifick gravity of the solids and liquids which enter into the composition of a human body; and accordingly we find that the body of a person destroyed by drowning, or thrown into water immediately after death, will sink far beneath the surface; but after several days have elapsed, a body thus treated usually rises to the level of the water, in consequence of its having become specifically lighter than that fluid, from the accumulation of gas within the body, produced by incipient putrefaction. It is then chiefly owing to the air included in the cavities of the body during life, especially that portion contained in the lungs, that a man is enabled to float on the surface of a pond or river.

There are, however, some credible accounts extant of persons whse bodies were so much inferiour in specifick gravity to water, that they could not descend beneath its surface; not possessing that "alacrity in sinking" which may be literally attributed to most individuals. In 1767, there was a priest residing at Naples, named Baulo Moccia, whose extraordinary facility of flotation attracted much attention. This ecclesiastick could swim on the sea like a duck; when he assumed a perpendicular position, the water stood on a level with the pit of his stomach; and it is stated that when dragged under the water by one or more persons who had dived for that purpose, as soon as he was released. his body would rapidly rise to the surface. It appears that the weight of this gentleman's body was thirty pounds less than that of an equal bulk of sea-water. This peculiarity of confirmation doubtless depended partly on his being extremely fat, and having very small bones; besides which, probably his lungs were capable of holding a larger quantity of air than is usual, and there might also have been an accumulaton of air in the abdomen, arising from a disease called tympany, or from some other cause.

Most very corpulent people, who are, at the same time, strong and healthy, would perhaps find, on trial, that their bodies would float on water; and those who do not happen to be endowed with a superabundance of fat, might still, in almost all cases, with a little application, acquire the habit of floating with facility. The capability of breathing freely, and at regular intervals, is essentially requisite to enable a person to support himself on the surface of water. The head, and the upper and lower extremities are relatively heavier than the trunk of the human body; and the head especially, from the quantity of bone of which it is composed, is the heaviest part of the whole mass, yet, unless the face at least, be kept above water, respiration cannot be continued.

It is therefore of the highest importance that all persons should be perfectly aware of the precautions necessary for this purpose; so that any one accidentally falling into the water, and being unable to swim, may be instructed how to escape a watery grave. A person suddenly immersed in water, if not absolutely deprived of self-possession by fright, should, on coming to the surface after the first plunge, endeavour to turn on the back, carefully keeping the hands down, with the palms extended towards the bottom of the water, the legs being suffered to sink rather lower than the trunk; the only parts above the surface, will then be the face and a small portion of the chest: at each inspiration more of the head and chest will rise above the water, and perhaps those parts will at first be for a moment covered with the aqueous fluid, at the interval of expiration of the air. Every thing depends on making no effort to raise or keep out of water any part except the face, and endeavouring to keep the lungs, and consequently the chest as much expanded as possible, without using any irregular exertions in breathing; and it may be proper to caution persons thus circumstanced, against struggling or screaming, as worse than useless; for in case any one who might yield assistance should be within call, it would be best to wait till the first alarm had subsided, and then the involuntary bather, conscious of comparative security, might use his voice with due effect, and without increasing the hazard of his situation.

But an acquaintance with the art of swimming can alone give a person perfect confidence of safety, when by accident immersed in water. It is to be lamented that this is not a more general accomplishment; for it is one which must frequently prove of great utility; and it is much to be desired that it should become a branch of education at schools for boys, as being of higher importance than the more fashionable arts of dancing, fencing, or even gymnasticks.

It may be questioned whether written instructions alone would enable any one to acquire a facility in swimming; and admitting their utility, it would be inconsistent with the purpose of this work to afford them more than a cursory notice. In swimming, as in floating, the chief object of attention must be to keep the face above water, while the limbs are immersed; but from the different position required, it must be apparent that in swimming, not the face alone, but nearly the whole head must be sustained above the surface. In making a first attempt, the advice of Dr. Franklin may be followed, where he directs the learner to walk into water till he reaches a place where it stands as high as his breast, and drop into the clear stream an egg; as soon as it has reached the bottom, he is to lean forward, resting on the water, and endeavour to take up the egg, when he will become sensible of the upward pressure or resistance of the fluid; and finding that it is not so easy to sink as might have been previously supposed, the young adventurer would acquire confidence in his own efforts, the valuable result of experience. Referring those who wish for full instructions in the art of swimming, to works more immediately devoted to the subject, a few remarks may be added on the artificial aids which have been recommended to those who are learning to swim. Corks, or blown bladders, fitted by strings passing under the arms, and across the chest, will afford material assistance in supporting the upper part of the body in a proper position; but they, perhaps, rather tend to retard than facilitate the progress of the learner, by leading him to form a false estimate of the resistance of the water; so that as soon as he makes an experiment without the corks, he finds himself obliged to recommence his task, and study it on a different plan which might as well have been adopted at first. If, however, corks or bladders should be used, it is highly necessary that they should be secured from slipping down to the hips, and thus causing the swimmer to fall with the head vertically downward, and incur the most imminent risk of drowning.

As less exertion would be required in the position of floating than in that of swimming, there would, perhaps, be some advantage in acquiring the power of flotation, as above described, previously to attempting to swim. This having been effected, the learner might, instead of the common expedient of using corks, procure a two-inch deal plank, ten or twelve feet long, and placing it in the water, lay hold of it with one or both hands and push it before him while learning to strike with his legs. But this, or any other artificial modes of practice that may be adopted, should be laid aside as speedily as possible, as the learner cannot too soon make himself acquainted with the precise effect of the pressure of the fluid in which he is moving, and with his own strength and power of action; and till such knowledge is attained he will make but slow progress in the art of swimming.

The method of communicating buoyancy to solids of greater specifick gravity than water, and enabling them to float in that fluid, by inclosing within them air or gas, is susceptible of application to a variety of useful purposes. It has accordingly been adopted in the construction of swimming-girdles, life-preserving belts, and air-jackets, which, like the bladders noticed above, are merely bags of different shapes, contrived so as to be inflated with air, and worn round the upper part of the body. Life-boats or safety-boats, as they are sometimes called, are rendered buoyant by forming in their sides air-tight cells or lockers, of sufficient dimensions to prevent the boat from sinking even when every other part of it is filled with water. It has recently been proposed to extend this principle to vessels of any size, and thus to prevent heavily laden merchant-ships or men-of-war from foundering at sea. The scheme consists in the employment of copper tubes of a cylindrical form, hermetically closed at the ends and sufficiently large and numerous to contain as much atmospherick air as would cause a ship to swim, when in consequence of having sprung a leak it would otherwise sink. It is stated by the inventor of these safety tubes, Mr. Ralph Watson, of London, that an eighty-gun ship, even when immersed from leaks, would not require the application of such tubes to a greater extent of displacement of water than would be sufficient to support two hundred and forty tuns of its immense weight.

Fishes in general are provided by nature with a peculiar apparatus, which enables them to swim with the utmost facility, and to ascend close to the surface of the water, or descend to a considerable depth beneath it, by means of a membranous bag or blad-

der containing air, which they can distend or contract, and thus alter their specifick gravity according to circumstances. The toad-fish (Antennarius levigatus) it is said distends its stomach, by swallowing air, to assist it in swimming, and becomes puffed up like a blown bladder, in the same manner as the globe or balloon fish.

Solids of the greatest specifick gravity, as gold or platina, may be made to float on water or any other liquid, provided the floating body be of such a form that its upper surface may be protected from the pressure of the liquid by a column of air, the depth of which bears a certain proportion to the specifick gravity of the solid. It is thus that a china teacup, though much heavier than an equal bulk of water, will yet float on that liquid if placed in it with its cavity upward and empty; but on pouring water into it, the cup will descend in consequence of the air within its cavity being displaced by the heavier fluid, till at length, when so much water has been poured in as to render the cup and water together heavier than a quantity of water equal to the space the cup now occupies when immersed to its edge, it will sink to the bottom.

A raft will float, because it is absolutely lighter than water, and a life-boat also for the same reason; but vessels in general, from the jolly-boat to the largest man-of-war, owe their buoyancy to their concave form. Hence ships need not be built of fir or any light wood, since not only the heaviest woods might be used but even the heaviest metals, to construct floating vessels; and indeed steamboats made of sheet-iron have recently been tried, and found to possess the requisite properties for ploughing the waves with perfect facility and safety.

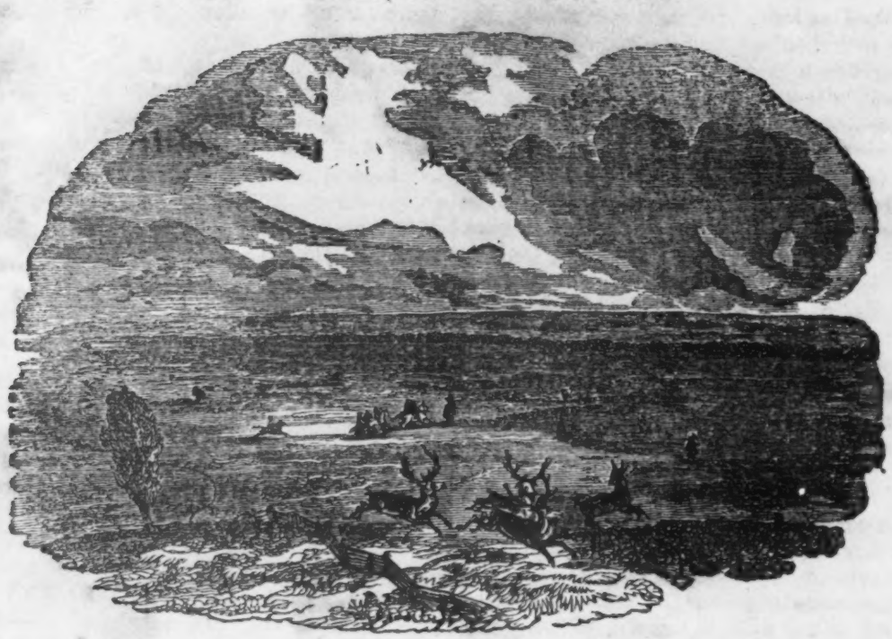
Floating bodies may be employed to raise heavy substances from the bottom of a river, pond, or basin of water. Thus a sufficient number of air-tight casks might be attached by ropes or chains to a large block of granite at the bottom of a river near its entrance into the sea, and the ropes being adjusted to such a length as to keep them strained tightly by the buoyancy of the casks at the lowest ebb of the tide, the block would be raised by the upward pressure of the casks at high water. Perhaps this method of raising or lowering ponderous masses of stone might be advantageously applied to practice in building bridges or piers within the tide-way of a river. The common method of regulating the supply of water conveyed by pipes into a cistern by means of what is called a ball-cock, depends on the action of a hollow globe of such dimensions relatively to the thickness of the metal as to keep it always floating on the top of the water in the cistern. A long wire is connected with the ball at one end, and at the other with a valve or stop-cock, on which it acts as a lever, opening it when the long arm of the lever is allowed to descend by the sinking of the ball attached to that end, when the water falls in the cistern, and on the contrary closing the valve when, by the rising of the ball with the water, the cistern becomes full, and the lever presses on the valve or cock and keeps it shut, so that the cistern can never be filled beyond the proper height.

The power of floating bodies may also be applied in a different manner for the purpose of rendering buoyant other bodies attached to them; and among the various applications of this principle may be noticed the ingenious invention called the water-camel, used in Holland and also in Russia and at Venice, to enable large and heavy-laden ships to pass shoals or sand-banks. The method of effecting this object consists in the application of two long narrow vessels adapted to the sides of the ship, and being hollow and water-tight they are filled with water, and then let down and firmly secured on each side of the ship, after which the water is to be pumped out of them, and the whole mass, consisting of the ship and camel, is thus rendered specifically lighter than before, and drawing less water than the ship alone did previously, the shoal or sand-bank may be passed without danger of grounding.

The tendency of a floating body to assume a particular position when partly immersed in a liquid, and to retain or lose that position according to circumstances, may be elucidated by reference to the doctrine of the centre of gravity, as explained with relation to the solids. When a solid body, specifically lighter than water, is placed on its surface, it will sink to a certain depth at which the absolute weight of the body is exactly counterbalanced by the upward pressure of the water. The point at which the entire weight of a body acts with greatest effect must be its centre of gravity; and that point at which the sustaining efforts of the liquid are most effective may be termed the centre of buoyancy, which must evidently coincide with the centre of gravity of the portion of water displaced by the floating body, and if the body be of uniform structure, with the centre of gravity of that part of it which is under water. A floating body cannot maintain itself in a state of equilibrium, unless its centre of gravity be situated in a vertical line over its centre of buoyancy, or immediately under that point. In the former case it will be in the state of instable equilibrium, and in the latter in that of stable equilibrium.

Hence the necessity of placing iron bars, stones, or other heavy substances, in the hold of a ship by way of ballast when it is not freighted, or is laden with very light merchandise, in order that its centre of gravity may not be elevated too much above its centre of buoyancy. It is not requisite that the centre of gravity should be reduced below the centre of buoyancy, for though such a disposition would contribute to the stability of the vessel, the resistance to its passage through the waves would be so great as to make it sail heavily. In determining the proper situation of those points, regard must be had to the shape and dimensions of a vessel as well as to the nature of the cargo and lading, and the manner of stowing it; and on a due attention to these circumstances its security and rate of sailing must in a great measure depend.

Love of Married Life.—The affection that links together man and wife, is a far holier and more enduring passion than the enthusiasm of young love. It may want its gorgeousness—it may want its imaginative character, but it is far richer in holy and trusting attributes. Talk not to us of the absence of love in wedlock. What! because a man has ceased to "sigh like a furnace," are we to believe that the fire is extinct?—No! it burns with a steady and brilliant flame; shedding a benign influence upon existence, a million times more precious and delightful than the cold dreams of philosophy.



THE PRAIRIE.

On my return from the Upper Mississippi, I found myself obliged to cross one of the wide Prairies, which, in that portion of the United States, vary the appearance of the country. The weather was fine, all around me was as fresh and blooming as if it had just issued from the bosom of nature. My knapsack, my gun, and my dog, were all I had for baggage and company. But, although well moccassined, I moved slowly along, attracted by the brilliancy of the flowers, and the gambols of the fawns around their dams, to all appearance as thoughtless of danger as I felt myself.

My march was of long duration; I saw the sun sinking beneath the horizon long before I could perceive any appearance of woodland, and nothing in the shape of man had I met with that day. The track which I followed was only an old Indian trace, and as darkness overshaded the prairie, I felt some desire to reach at least a copse, in which I might lie down to rest. The nighthawks were skimming over and around me, attracted by the buzzing wings of the beetles which form their food, and the distant howling of wolves, gave me some hope that I should soon arrive at the skirts of some woodland.

I did so, and almost at the same instant a firelight attracting my eye, I moved towards it, full of confidence, that it proceeded from the camp of some wandering Indians. I was mistaken:—I discovered by its glare that it was from the hearth of a small log cabin, and that a tall figure passed and repassed between it and me, as if busily engaged in household arrangements.

I reached the spot, and presenting myself at the door, asked the tall figure, which proved to be a woman, if I might take shelter under her roof for the night. Her voice was gruff, and her attire negligently thrown about her. She answered in the affirmative. I walked in, took a wooden stool, and quietly seated myself by the fire. The next object that attracted my notice was a finely formed young Indian, resting his head between his hands, with his elbows on his knees. A long bow rested against the log wall near him, while a quantity of arrows and two or three rackoon skins lay at his feet. He moved not; he apparently breathed not. Accustomed to the habits of the Indians, and knowing that they pay little attention to the approach of civilized strangers, (a circumstance which in some countries is considered as evincing the apathy of their character,) I addressed him in French, a language not unfrequently partially known to the people in that neighbourhood. He raised his head, pointed to one of his eyes with his finger, and gave me a significant glance with the other. His face was covered with blood. The fact was, that an hour before this, as he was in the act of discharging an arrow at a rackoon in the top of a tree, the arrow had split upon the cord, and sprung back with such violence into his right eye, as to destroy it for ever.

Feeling hungry, I inquired what sort of fare I might expect. Such a thing as a bed was not to be seen, but many large untanned bear and buffalo hides lay piled in a corner. I drew a fine timepiece from my breast, and told the woman that it was late, and that I was fatigued. She had espyed my watch, the richness of which seemed to operate upon her feelings with electrick quickness. She told me that there was plenty of venison and jerked buffalo meat, and that on removing the ashes I should find a cake. But my watch had struck her fancy, and her curiosity had to be gratified by an immediate sight of it. I took off the gold chain that secured it from around my neck, and presented it to her. She was all ecstasy, spoke of its beauty, asked me its value, and put the chain round her brawny neck, saying how happy the possession of such a watch would make her. Thoughtless, and, as I fancied myself, in so retired a spot, secure, I paid little attention to her talk or her movements. I helped my dog to a good supper of venison, and was not long in satisfying the demands of my own appetite.

The Indian rose from his seat, as if in extreme suffering. He passed and repassed me several times, and once pinched me on the side so violently, that the pain nearly brought forth an exclamation of

anger. I looked at him. His eye met mine; but his look was so forbidding, that it struck a chill into the more nervous part of my system. He again seated himself, drew his butcher-knife from its greasy scabbard, examined its edge, as I would do that of a razor suspected dull, replaced it, and again taking his tomahawk from his back, filled the pipe of it with tobacco, and sent me expressive glances whenever our hostess chanced to have her back towards us.

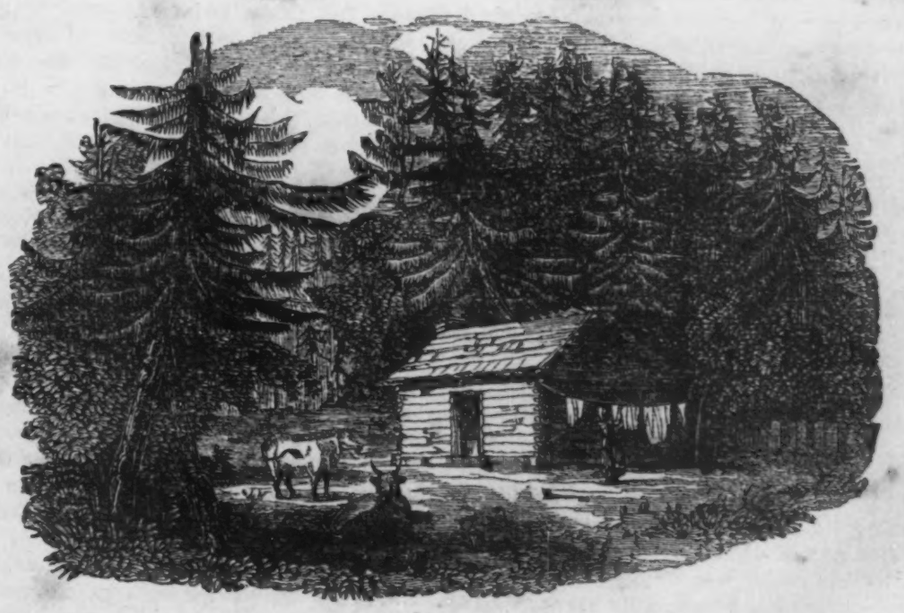
Never until that moment had my senses been awakened to the danger which I now suspected to be about me. I returned glance for glance to my companion, and rested well assured that, whatever enemies I might have, he was not of their number.

I asked the woman for my watch, wound it up, and under pretence of wishing to see how the weather might probably be on the morrow, took up my gun, and walked out of the cabin. I slipped a ball into each barrel, scraped the edges of my flints, renewed the primings, and returning to the hut, gave a favourable account of my observations. I took a few bear-skins, made a pallet of them, and calling my faithful dog to my side, lay down, with my gun close to my body, and in a few minutes was, to all appearance, fast asleep.

A short time had elapsed, when some voices were heard, and from the corner of my eyes I saw two athletick youths making their entrance, bearing a dead stag on a pole. They disposed of their burden, and asking for whiskey, helped themselves freely to it. Observing me and the wounded Indian, they asked who I was, and why the devil that rascal (meaning the Indian, who, they knew, understood not a word of English) was in the house. The mother—for so she proved to be, bade them speak less loudly, made mention of my watch, and took them to a corner, where a conversation took place, the purport of which it required little shrewdness in me to guess. I tapped my dog gently. He moved his tail, and with indescribable pleasure I saw his fine eyes alternately fixed on me and raised towards the trio in the corner. I felt that he perceived danger in my situation. The Indian exchanged a last glance with me.

The lads had eaten and drunk themselves into such condition, that I already looked upon them as *hors de combat;* and the frequent visits of the whiskey-bottle to the ugly mouth of their dam, I hoped would soon reduce her to a like state. Judge of my astonishment, reader, when I saw this incarnate fiend take a large carving-knife, and go to the grind-stone to whet its edge. I saw her pour the water on the turning machine, and watched her working away with the dangerous instrument, until the sweat covered every part of my body, in despite of my determination to defend myself to the last. Her task finished, she walked to her reeling sons, and said, "There, that'll soon settle him! Boys, kill you——, and then for the watch."

I turned, cocked my gun-locks silently, touched my faithful companion, and lay ready to start up and shoot the first who might attempt my life. The moment was fast approaching, and that night might have been my last in this world, had not Providence made preparations for my rescue. All was ready. The infernal hag was advancing slowly, probably contemplating the best way of despatching me, whilst her sons should be engaged with the Indian. I was several times on the eve of rising and shooting her on the spot:—but she was not to be punished thus. The door was suddenly opened, and there entered two stout travellers, each with a long rifle on his shoulder. I bounced up on my feet, and making them most heartily welcome, told them how well it was for me that they should have arrived at that moment. The tale was told in a minute. The drunken sons were secured, and the woman, in spite of her defence and vociferations, shared the same fate. The Indian fairly danced with joy, and gave us to understand that, as he could not sleep for pain, he would watch over us. You may suppose we slept much less than we talked. The two strangers gave me an account of their once having been themselves in a somewhat similar situation. Day came, fair and rosy, and with it the punishment of our captives.



They were now quite sobered. Their feet were unbound, but their arms were still securely tied. We marched them into the woods off the road, and having used them as Regulators were wont to use such delinquents, we set fire to the cabin, gave all the skins and implements to the young Indian warriour, and proceeded, well pleased, towards the settlements.

During upwards of twenty-five years, when my wanderings extended to all parts of our country, this was the only time at which my life was in danger from my fellow-creatures. Indeed, so little risk do travellers run in the United States, that no one born there ever dreams of any to be encountered on the road; and I can only account for this occurrence by supposing that the inhabitants of the cabin were not Americans.

Will you believe, reader, that not many miles from the place where this adventure happened, and where fifteen years ago, no habitation belonging to civilized man was expected, and very few ever seen, large roads are now laid out, cultivation has converted the woods into fertile fields, taverns have been erected, and much of what we Americans call comfort is to be met with. So fast does improvement proceed in our abundant and free country. Audubon.

BIOGRAPHY.

HERNANDO DE SOTO—Born, 1501—Died, 1542.

Among the many bold and chivalrick gentlemen who visited America, early after its discovery by Columbus, the name of Hernando de Soto, occupies a prominent place. A man who was by nature well adapted for adventurous enterprise: he possessed great strength of body and vigour of arm, he was patient and persevering, brave as a lion, but courteous and engaging in his manners; his ideas of military discipline were strict, and while the least breach of duty was severely punished, he was always ready to reward the meritorious and deserving.

The most authentick narrative of his exploits are contained in an interesting work entitled "*The Conquest of Florida, by Hernando de Soto.* By Theodore Irving," from which we shall quote freely in this brief sketch of his life.

Hernando de Soto was born about the year 1501 in Villa nueva de Barcarota; he was of good family, but poor, all his estate being a sword and buckler. He accompanied Davila, when he came to America to take governourship of Terra Firma, and the merits of de Soto were such, that he had command of a troop of horse given to him, with which he followed Pizarro, in his expedition to Peru. Here he soon signalized himself by a rare combination of prudence and valour; he was excellent in council, yet foremost in every perilous exploit; bravely putting every thing at hazard, where any important point was to be gained by intrepidity. Pizarro soon discovered his talents, and appointed him his lieutenant; a master of his weapons, and a perfect horseman, his prowess and adroitness were the admiration of the Spanish soldiery, who declared that his lance alone was equal to any ten in the army.

After distinguishing himself in Peru, de Soto returned to Spain enriched with the spoils of the new world; he now appeared at the court of the emperour Charles V. in magnificent style, and was attended by a knot of brave cavaliers, many of whom had been with him in Peru; he was in the prime of manhood, about thirty-six years old, commanding in figure, and of a dark animated and expressive countenance. With such advantages of person and reputation he soon succeeded in gaining the affections and hand of a lady of distinguished rank and merit, Isabella de Bobadilla, which marriage strengthened his influence at court. About this time the fate of Pamphilo de Narvaez and his followers, who had gone on an expedition to Florida, reached Spain. The imagination of de Soto became excited by the narrative of this expedition; his ambition was roused by the desire of rivalling the fame of Cortez and Pizarro, and his reputation, wealth, past services, and marriage connexions, all gave him the means of attaining his wishes. He therefore asked permission of the emperour to undertake the conquest of Florida at his own expense and risk. His prayer was granted; numerous privileges were conferred upon him, and he was created captain-general for life, of Florida as well as of Cuba; the control of the latter island being important to him in fitting out his armament for the conquest of Florida. The news of this expedition was soon promulgated throughout Spain and in a little more than a year from the time that this enterprise was first proclaimed, nine hundred and fifty Spaniards of all degrees had assembled in the port of San Lucar de Barrameda, to embark in the expedition. Never had a more gallant and brilliant body of men offered themselves for conquest in the new world. All were young and vigorous, and fitted for the toils, hardships, and dangers of so adventurous an undertaking. De Soto was munificent in his offers of pecuniary assistance, to aid the cavaliers in fitting themselves out according to their rank and station. Many were compelled, through necessity, to accept of these offers; others, who had means, generously declined them, deeming it more proper that they should assist than accept aid from him. Many came splendidly equipped with rich armour, costly dresses, and a train of domesticks. Indeed, some young men of quality had spent a great part of their property in this manner. This brilliant armament embarked at San Lucar de Barrameda, on the sixth of April, 1538, in seven large and three small vessels. The governour, his wife, together with all his family and retinue, embarked in the largest vessel, called the San Christoval, of eight hundred tuns' burden. They quitted the Spanish shore in company with a fleet of twenty-six sail bound to Mexico, amid the braying of trumpets and the thunder of artillery. The armament of de Soto was so bountifully supplied with naval stores that each man was allowed double rations. This led to useless waste, but the governour was of a munificent spirit, and so elated at finding in his train such noble and gallant spirits, that he thought he could not do enough to honour and gratify them.

The armament arrived at the Canaries on the twenty-first of April, where de Soto was entertained with great courtesy: sailing again on the twenty-fourth of the same month, he arrived at Cuba about the last of May. Here the fleet remained for a long period; during which, de Soto despatched a vessel to Florida to select a safe harbour. This having

[Portrait of Hernando de Soto.]

been accomplished, he sailed from Havana on the twelfth of May, 1539, and on the twenty-fifth of the same month arrived at Espiritu Santo, and took formal possession of the country in the name of Charles V. The troops disembarked, and not a single Indian was to be seen, the soldiers remained all night on shore in careless security, when in the morning they were suddenly attacked by a large body of Indians; several of the Spaniards were wounded by arrows, but reinforcements arriving from the ships, the savages were repulsed and the army took up their residence in a deserted village, the houses of which were large, built of wood and thatched with palm-leaves. Leaving a garrison in this village of Herrihigua, de Soto proceeded for several leagues into the interiour, although constantly harassed by the Indians. The kind of resistance met with by the Spaniards may be seen by the following extract:

The fertile province in which the army was now encamped lay twenty leagues to the north of that governed by Urribarracaxi, and was governed by a cacique named Acuera, who, on the approach of the Spaniards, had fled with his people to the woods. Hernando de Soto sent Indian interpreters to this chief, representing the power of the Spaniards to do injury in war, and confer benefits in peace; declaring his disposition to befriend the natives; his only object being, by amicable means to bring the people of this great country into obedience to his sovereign, the powerful emperour and king of Castile. He invited the cacique, therefore, to a friendly interview, in order to arrange a peaceful intercourse. The cacique returned a haughty reply: 'Others of your accursed race,' said he, 'have, in years past, disturbed our peaceful shores. They have taught me what you are. What is your employment? To wander about like vagabonds from land to land; to rob the poor; to betray the confiding; to murder the defenceless in cold blood. No! with such a people I want neither peace nor friendship. War—never-ending, exterminating war—is all I ask. You boast yourselves to be valiant—and so you may be; but my faithful warriours are not less brave; and of this you shall one day have proof, for I have sworn to maintain an unsparing conflict while one white man remains in my borders; not openly in the battle-field, though even thus we fear not to meet you, but by stratagem, ambush, and midnight surprisal.' In reply to the demand that he should yield obedience to the emperour, the chief replied: 'I am king in my own land, and will never become the vassal of a mortal like myself. Vile and pusillanimous is he who submits to the yoke of another when he may be free! As for me and my people, we prefer death to the loss of liberty, and the subjugation of our country!' The governour, filled with admiration at the spirit of this savage chieftain, was more pressing than ever to gain his friendship: but to all his overtures the cacique's answer was, that he had already made the only reply he had to offer. The army remained in this province twenty days, recruiting from the fatigues and privations of their past journey. During this time, the governour sent persons in every direction to explore the country; and

they returned with favourable reports. During this time the Indians were not idle. To justify the bravadoes of their cacique, they lurked in ambush about the camp, so that a Spaniard could not stray a hundred steps from it without being shot and instantly beheaded; if his companions hastened to his rescue, they found nothing but a headless trunk. The Christians buried the bodies of their unfortunate comrades wherever they found them; but the savages invariably returned the following night, disinterred them, cut them up, and hanged them upon trees. The heads they carried as trophies to their cacique, according to his orders. Thus fourteen Spaniards perished, and a great number were wounded. In these skirmishes the Indians ran comparatively little risk, as the Spanish encampment was skirted by a thicket, whither, after making an assault, the assailants could easily escape. In this manner the Spaniards saw effectually verified the threats of their ferocious foes, who had hung upon their rear during the march. 'Keep on, robbers and traitors!' they cried, 'in Aucera and Apalachee we will treat you as you deserve. We will quarter and hang up every captive on the highest trees along the road.' Notwithstanding their great vigilance, the Spaniards did not kill more than fifty Indians, for the latter were extremely wary in their ambuscades."

When the Indians risked general engagements, they were always defeated with great slaughter by their well-armed, brave, and highly-disciplined adversaries, and particularly by the terrour inspired by their horses. We copy part of the conclusion of one of these battles, which took place in the vast province of Vitachuco:—

"A worse fate attended the enemy's vanguard, composed of his bravest warriours; who are always doomed to fare the worst in battle. After receiving the first impetuous charge of the cavalry, they fled; but, unable to reach either the forest or the larger lake, more than nine hundred threw themselves into the smaller one. Here they were surrounded by the Spaniards, who endeavoured, by threats, promises, and occasional shots from their crossbows and arquebuses, to induce them to surrender. The Indians replied only by flights of arrows. As the lake was too deep to give them footing, they adopted a mode of defence as singular as it was desperate. Three or four clung together, and supported each other by swimming, while one mounted upon their backs, and plied his bow and arrows. In this way an incessant skirmishing was kept up all day. Numbers of Indians were slain, and all their arms exhausted, yet no one expressed a desire to surrender. At night the Spaniards posted themselves near each other, round the lake, the horse by two and two, the foot in parties of six, lest the savages should escape in the dark. Some of the latter endeavoured to save themselves by covering their heads with the leaves of water-lilies, and swimming noiselessly to land; but the watchful troopers, perceiving that the water was agitated, spurred their horses to the bank, and drove their enemies back again into the channel, in hope of tiring them out, and thus forcing them to capitulate. They, moreover, threatened them with death if they did not yield, but offered them peace if they would surrender. So obstinate were they, however, that it was midnight before any of them submitted, although they had been fourteen hours in the water. At length, the intercessions of Juan Ortiz, and of the four Indian interpreters, began to have effect. The most weary came on shore, one and two at a time, but so slowly that by the dawn of day not more than fifty had surrendered. The remainder, seeing that these were kindly treated, and being persuaded by them, now gave themselves up in greater numbers, but still with extreme reluctance. Some, when near the bank, returned to the middle of the lake, until the love of life compelled them to yield. At ten o'clock, two hundred landed at the same time, and surrendered themselves, after having been in the water four-and-twenty hours. They were in a wretched condition—swollen with the water they had swallowed, and overcome with fatigue, hunger, and want of sleep. There yet remained in the lake seven Indians of such indomitable spirit that neither the entreaties of the interpreters, the promises of the governour, nor the example of their comrades who had surrendered, had any effect upon them. They treated all promises with scorn, defying both menaces and death. Thus they remained until three o'clock in the afternoon, and would, no doubt, have remained there until they had died; but the governour, struck with admiration of their magnanimity, thought it would be inhuman to allow such brave men to perish, and consequently ordered twelve Spaniards, who were expert swimmers, to go into the lake with their swords in their mouths, and drag them out by main force. As they were too much exhausted to resist, the Spaniards seized them by the legs, arms, and hair, drew them to land, and placed them upon the bank, where they lay extended, more dead than alive; having, according to the Spanish narrator, been thirty hours in the water, apparently without putting their feet to the ground, or receiving any relief; an exploit adds the Inca historian, almost incredible, and which I should not dare to record, but upon the authority of several cavaliers and nobles, who, both in the Indies and in Spain, assured me of its truth, confirming the authenticity of this extraordinary feat, related to me by a person in all things worthy of belief. * * * The Indians, who had come out of the lake and surrendered themselves, were distributed among the Spaniards to serve them as menials, so long as their conquerors should remain in the province. This was partly as a punishment for their participation in the late treason, and partly to deter the neighbouring tribes from like aggressions. * * * *

"Vitachuco (continues the narrative) now remained in some sort a prisoner in his own house, but was treated with great kindness and respect, and dined at the governour's table. Rage and hatred, however, still rankled in his breast; and he soon conceived another scheme of vengeance. Nine hundred of his bravest warriours were dispersed among the Spaniards; equalling the latter in number, and, as he thought in personal prowess. They attended their new masters as slaves, and as the Spaniards, when at their meals, were seated, off their guard, and many of them without weapons, the cacique conceived that at such a moment it would be easy, by a preconcerted movement, for his subjects to strike a signal blow that should rid them at once of their oppressors. Scarcely had Vitachuco conceived this rash scheme, than he hastened to put it into operation. He had four young Indians who attended him as

pages. These he sent to the principal prisoners revealing his plan, with orders that they should pass it secretly from one to another, and hold themselves in readiness, at the appointed time, to carry into effect. The dinner-hour of the third day was the time fixed upon for striking the blow. As Vitachuco would be dining with the governour, and the Indians in general attending upon their respective masters, the cacique was to watch his opportunity, spring upon De Soto and kill him; giving, at the moment of assault, a war-whoop that should resound throughout the village. This was to be the signal for every Indian in the place to grapple with his master, or any other Spaniard, and despatch him on the spot. Many of the poor natives saw the madness of this second project; but, accustomed to yield implicit obedience to their chief, they promised to carry it into execution or perish in the attempt. On the day fixed, Vitachuco dined as usual at the table of the governour, who sought to win his friendship by the kindest attentions. When the repast was concluded, the savage stretched himself upon the bench on which he had been seated, and twisting his body from side to side, projected first one arm, then the other, to its full extent, clenching his fists, and drawing them up so that they rested on his shoulders; he then jerked out his arms two or three times, until every joint cracked like a snapped reed. In this way the Indians of Florida used to rally their strength when about to perform any extraordinary feat. After this preparation, the cacique sprang upon his feet, closed instantly with the governour, at whose side he had been sitting, seized him with his left hand by the collar, and with the right hand gave him such a blow in the face as to level him with the ground, the blood gushing out of his eyes, nose, and mouth, as if he had been struck with a club. The cacique threw himself upon his victim to finish his work, at the same time giving his signal war-whoop so loudly that it might have been heard for a quarter of a league. All this was the work of an instant, and before the officers present had time to recover from their astonishment, the governour lay senseless beneath the tiger grasp of Vitachuco. One more blow from the savage would have been fatal; but ere he could deliver it, a dozen swords and lances were thrust through his body, and he fell dead, blaspheming heaven and earth at having failed in his deadly purpose. The war-whoop of the cacique had been heard and obeyed by his subjects throughout the village. On hearing the signal, the Indians, who were attending upon their masters, assailed them with whatever weapon or missile they could command. Some seized upon pikes and swords, which they wielded with great skill; others snatched up the pots in which meat was stewing at the fire, and beating the Spaniards about their heads, bruised and scalded them at the same time; some caught up plates, and pitchers, jars, and the pestles with which they pounded the maize; others, bones remaining from the repast; others seized upon stools, benches, and tables, striking with impotent fury when their weapons had not the power to harm. The greater number, however, armed themselves with burning firebrands, which seemed to have been provided for the purpose, and rushed like devils into the affray. In this chance-medley fight many of the Spaniards were terribly burnt, bruised, and scalded; some had their arms broken, others were maimed by sticks and stones. One was knocked down by his slave with a firebrand, and beset by three other Indians, who dashed out his brains. Another was assailed with blows, his teeth knocked out, and he was on the point of falling a sacrifice when several of his countrymen came to his assistance. The savage assailant fled and mounted a hand-ladder into a granary opening upon a court-yard, taking with him a lance which he found against the wall. The Spaniards attempted to ascend after him, but he planted himself in the doorway, and defended the entrance so bravely with his lance that no one dared approach him. At length, Diego de Soto, a relative of the governour, arrived in the court armed with a crossbow. He presented it, and took aim. The Indian never attempted to draw back or screen himself; his object was, not to save his life, but to sell it as dearly as possible. At the instant, de Soto drew his bow, he threw the lance. The steeled point grazed the Spaniard's right shoulder, and the shaft knocked him down upon his knees, passing half a length beyond, and remained quivering in the ground. The aim of de Soto was more certain. His shaft pierced the Indian through the breast, and killed him upon the spot. It was fortunate for the Spaniards that most of the Indians were in chains, and none of them regularly armed, otherwise their assault would have been attended with great carnage. As it was, many Spaniards were maimed, and four slain, before the savages could be overpowered. A signal vengeance was then taken upon the prisoners. Some of the Spaniards were so exasperated at the wounds they had received, and at hearing of their governour's maltreatment, that they wreaked their fury upon every Indian in their power. Others, who were cavaliers, thought it beneath their dignity to take away the lives of slaves. They brought their prisoners, therefore, to the grand square of the village, and delivered them into the hands of the archers of the general's guard, who despatched them with their halberds. Among the cavaliers who thus brought their captive slaves to be executed, was one of a small and delicate form, named Francisco de Saldana. He entered the square, leading after him a powerful Indian, by a cord tied round the latter's neck. No sooner, however, did the savage perceive what was passing, and the fate that awaited him, than, driven to desperation, he closed upon Saldana as he walked before him, seized him with one hand by the neck and with the other by the thigh, raised him like a child, turned him topsy-turvy with his head downwards, and dashed him to the ground with a violence that stunned him. Jumping then upon his body he would have despatched him in an instant, had not a number of Spaniards rushed with drawn swords to the rescue of their comrade. The Indian seized Saldana's sword, and received them so bravely that, though there were more than fifty, he kept them all at bay. Grasping the weapon with both hands, he threw himself into the midst of them, whirling himself round like a wheel, and dealing blows so rapidly and madly that no one dared oppose him, and they were obliged to despatch him with their fire-arms. These and many similar scenes of desperate valour occurred in this wild affray. In order to embroil with the natives of the neighbourhood, the interpreters, and those Indian allies who

had accompanied the Spanish army from the other provinces, so that they should not thenceforward abandon the Spaniards, they were compelled to aid in destroying the prisoners, many of whom were tied to stakes in the publick squares, and shot with their arrows. In these battles and the subsequent massacres, fell Vitachuco and thirteen hundred of his warriours, the flower of his nation, among whom were the four brave leaders who had been rescued from the lake."

These extracts will enable our readers to judge of the difficulties encountered by de Soto. He however continued his route through the province of Osachile, and the army passed the winter of 1539 in the province of Apalachee. In the spring of 1540, de Soto continued his route: and in the province of Cosachriqui, which is thought to be near the seacoast of Georgia and South Carolina, he obtained, it is said, fourteen bushels of pearls. At length, he came to the dominions of the cacique Tuscaloosa, which must have comprised a great part of Alabama and Mississippi. Here a disastrous battle ensued on the site as it is thought of Mobile: a battle in which forty-two Spaniards were killed and many thousand Indians perished. After this battle the situation of the Spaniards was most deplorable. The army had been much reduced by the march into the interiour; most of the soldiers were severely wounded, all were exhausted by fatigue and hunger. The village around them was reduced to ashes, and all the baggage with the supplies of food and medicine had been consumed in the house. At this time, too, the spirit and ardour of de Soto were damped by the dissatisfaction among his troops: on the 16th of November, he therefore broke up his encampment and turned his face to the northward; after a march of five days he entered the province of Chicazo where he remained through the winter. Early in 1541, the army of de Soto was attacked in the encampment, and although the Indians were driven off and defeated, yet it was with the loss of forty Spaniards with their horses. Three days after this battle, the army moved to a more advantageous position, about a league distant, called Chicacilla; here they spent the rest of the winter, in great suffering from the cold, having lost all their clothing in the late battle. They now erected a forge, and busied themselves in newly tempering their swords, and in making saddles, shields and lances, to replace those which they had lost. On the first of April, the army again moved forward until they came in sight of the Mississippi, which they crossed, (probably at the lowest Chickasaw bluff,) and came to the village called Casquin or Casqui, (*Kaskaskias*,) situated in the province of the same name. The same fortune still awaited the Spaniards: the Indians were constantly attacking them; and although always subdued and cut off in great numbers, yet their enmity against the conquerors remained firm and implacable. De Soto however continued his march through the province of Palisema, passed through a village called Tanied, (Tunicas,) and came among the tribe of Tula Indians, and wintered in the village of Uttanque. Here their interpreter died, and his death was a severe loss to the service, as throughout the expedition, he had served as the main organ of communication between the Spaniards and the natives. In the spring of 1542, the views of de Soto were changed: his hopes of finding gold regions were disappointed: he had lost nearly half his troops by fighting and hardships of various kinds: the greater part of his horses too had perished, and all had been without shoes for more than a year for the want of iron. He now resolved to return to the Mississippi; select a suitable village on its banks for a fortified post, establish himself there and build two vessels in which some of his most confidential followers might descend the river, carry tidings of his safety to his wife and friends in Cuba, procure reinforcements of men and horses, together with flocks, herds, seeds, and every thing else necessary to colonize and secure the possession of the vast and fertile country he had overrun. As soon as the spring was sufficiently advanced, therefore, de Soto broke up his winter cantonment and set out in the direction of the Mississippi; after a time he came to the village of Guachoya, which contained three hundred houses and was situated about a bowshot from the Mississippi in two contiguous hills with a small intervening plain that served as a publick square, the whole way fortified with palissades. The inhabitants had fled across the river in their canoes, but abundance of provisions was found in the adjacent country. Here the melancholy which had long preyed upon the spirits of de Soto, the incessant anxiety of mind and fatigue of body, added perhaps to the influence of climate, brought on a slow fever which continued until the seventh day, when he felt convinced that his last hour was at hand. He now made his will, and appointed his successor. When this was done, the dying chief called to him by two and two, and three and three, the most noble of his army and after them he ordered that the soldiery should enter, twenty and twenty, thirty and thirty, and of all of them he took his last farewell. He charged them to convert the natives to the Catholick faith and to augment the power of the crown of Spain. He thanked them for their affection and fidelity to him, and regretted that he could not show his gratitude by rewards such as they merited. He begged forgiveness of all whom he had offended, and finally entreated them, in the most affectionate manner, to be peaceful and loving to one another. Having confessed his sins with much humility, he died like a Catholick Christian, imploring mercy of the most Holy Trinity. His body was placed in the trunk of an evergreen oak and sunk in the Mississippi.

After great suffering, the remnant of this ill-fated expedition passed down the Mississippi, and enduring severe hardships, succeeded in reaching Panuco, blackened, haggard, and half naked, being clad only with the skins of deer, buffaloes, bears, and other animals, so that they looked more like wild beasts, than human beings.

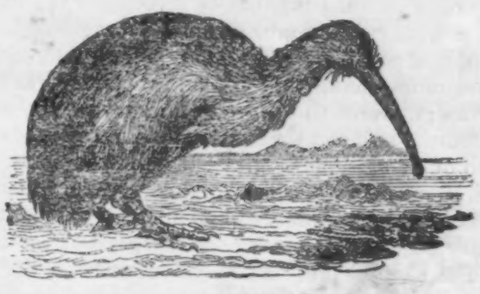
Among the ancient *Persians*, when children arrived at five years of age, they were intrusted to the care of learned men, who carefully implanted in their opening minds an aversion to vice, and allured them, rather by example than by precept, to the practice of the moral virtues. They were all trained to military exercises, and particularly to the use of the bow; and none were allowed to enter the royal palace without express permission, nor to approach the seat of majesty without prostrating themselves to the ground.

NATURAL HISTORY.

THE SNOWBIRD.

When winter comes arrayed in garments of snow, the little snowbirds may be seen, waving their wings against the sunlight, and looking like stars of silver. The scientifick name of the bird is the snowbunting, it generally inhabits the higher regions of the arctick circles, but as the severe cold comes on, it migrates over the United States, and also Europe and Asia. Early in December, they descend into the northern states, in large flocks, either immediately before, or soon after a fall of snow. Amidst the snowdrifts, flocks of these "bad-weather birds," as they are termed by the Swedes, flit about in restless and hungry troops, resting for a moment in the fences or trees, and then again on the wing. At times, pressed by hunger, they alight near the door of the farm-house, or approach the barn, and in very severe weather, will even venture into the outhouses in search of seeds or crumbs: but when the weather becomes milder, they are much more shy. They seem to be aware also of the advantages to be derived by them from larger birds scratching the earth, and in some degree keep company with partridges, wild-turkeys, and even squirrels, in order to pick up the food rejected by these animals as beneath their notice. The snowbird is a true hopping-bird, and makes its little leaps without the least appearance of moving either feet or legs; in which circumstance it resembles the sparrow. Another of its habits is, that it resorts at night during severe cold weather, to stacks of corn and hay, in which they form a hole, and remain snug in it, during the continuance of such weather.

At the period of incubation they are said to sing agreeably, but appear to seek out the most desolate regions of the cheerless north, to pour forth their melody to their listening mates. Their nests are built in the fissures of rocks or mountains: the inside of them is made of dry grass with feathers, and lined with the down of the arctick fox. The eggs are said to be five, which are whitish, spotted with brown and gray spots. The old bird measures about seven and a half inches in length.



APTERYX.

The above cut represents a very curious bird, the apteryx or wingless bird of New Zealand. A most extraordinary species, genus, family, and—as one may almost say—order of winged creature, of which the characters, so far as they are known, clearly enough demonstrate that it is a bird, but they as clearly demonstrate that it does not come within any of the orders into which other birds are arranged in the systems. All that is known of it is a single skin, with the bill and feet attached, unmutilated, and in a good state of preservation. This skin was brought from New Zealand in 1812, by Captain Barcley of the ship Providence, from whom it passed into the hands of the late Dr. Shaw. Dr. Shaw described it in the 24th volume of the Naturalist's Miscellany, and accompanied the description by a figure; and that description and figure form the only sources whence Temminck, and some other foreign naturalists, who have noticed the bird, obtained their information. But Dr. Shaw, though a laborious collector, and voluminous compiler, was by no means a philosophick naturalist, and therefore his figure was not very accurate, and his description by no means calculated either to draw much attention to the bird, or to put inquirers in the right way of discovering its natural relations or affinities. Some foreign naturalists went even so far as to question the existence of the bird, though in the same work, and in the adjoining page, the very same author mentions it, under its New Zealand name of *Kivi Kivi*, (most likely an imitation of its cry,) as being abundant in the forests of that country. Of course, no characters are described along with the mention of the Kivi Kivi, because, though many of the voyagers frequenting New Zealand, have often heard the natives mention the name of the bird, the places where it is found, and some of them have seen the chiefs with cloaks ornamented with the skins, so as to leave no doubt of the identity of the Stanley specimen, yet it does not appear that any European has seen either bill or foot, except in that specimen.

Lord Stanley sent the specimen to the Zoological Society, where the skin was so carefully examined as to ascertain with certainty that there is no decep-

tion in it; and a new figure and description, more in accordance with the analogies of the bird, were drawn up by Mr. Yarrel, with his usual accuracy. Of this figure, prepared under the directions of Mr. Yarrel, we have given an accurate view; and we cannot convey a clearer idea of the appearance of this extraordinary creature than in that gentleman's words, which on account of the variety of the subject, we will quote entire :—

"The whole length of the bird," says Mr. Yarrell, "from the point of the beak to the end of the body, (for there is no tail,) is thirty-two inches; the beak is of a light yellow-brown colour, long, slender, smooth, and polished, in form resembling that of an ibis, but rather more straight, and depressed at the base; length from the gape to the point, six and three fourths inches; the upper mandible is grooved in each outer side, near the margin, throughout its whole length; at the end of this groove, at each side, the nostrils are pierced, the apertures elongated and covered by a membrane, so suspended on the outside of each of these like a valve, that the slightest pressure against the outer surface when flexible, as during life, would render the nostrils impervious, and effectually defend and cover them. A bristle introduced into the nostril, under and behind this defending membrane, passes up the whole length of the beak. The upper mandible terminates in a blunt truncated knob, projecting a little downwards, behind which, on its under surface, the end of the lower mandible ranges when both are closed. The lower mandible is also grooved slightly near the outer edges throughout its whole length. Both mandibles are broad and flat at the base, measuring full one inch across at the gape, and only seven lines in height. The breadth of the upper mandible at the the point is two lines, under mandible still more narrow.

"Throughout the whole length of the upper mandible and the distal three fourths of the under one, the inner or opposed surfaces of both are perfectly flat, producing, when pressed together, uniform and entire contact, and well adapted for compressing or crushing such substances as may be selected for food. The proximal fourth of the lower mandible is concave on its inner surface, affording space for the tongue, which must, in proportion to the beak, be small and short.

"The form of the body in this preserved specimen is that of an elongated cone placed nearly upright over a pair of short and stout legs, and the bird is thus made to resemble a penguin. In the figure annexed to the present description, the position and character assumed for it is that of the *Struthious* birds, in accordance with its real systematick relations.

"From the crown of the head to the lower end of the body, the length is twenty-four inches; and the circumference at the lower part eighteen inches. The feathers on the top of the head and forehead are short, and the skin carried forwards over the base of the beak to the extent of an inch, is covered by a mixture of dark feathers, bristles, and hair. About the gape on each side are also several long black bristles. The feathers of the neck are somewhat longer than those on the head, and they increase in length generally in proceeding downwards over the body. Those of the head and neck are of a hair-brown colour, with the shafts lighter; on the back, sides, and rump, the shafts and inner portions of the webs are reddish, yellow, brown, and the edges dark-brown, producing an agreeably variegated appearance. On the lower part of the neck in front, the breast, and the belly, the feathers are lighter in colour than on any other part of the body; the shafts still lighter than the webs, and greyish white. The feathers generally are uniform in structure, and resemble those of the *emeu;* but each feather is much shorter, the longest (those hanging over the rudimentary wings) not exceeding four and a half inches. The webs are of greatest extent, most flocculent and silky at the base of each feather, and become more linear and shorter towards the end; the whole of the fibres forming the web are disunited, and the shaft has no secondary or accessory plume.

"On each side, about midway between the head and lower end of the bird, is a rudimentary wing consisting of three distinct portions.

"The part of the *humerus* that remains is about one inch in length; and from the appearance of the fractured end of the bone within the skin, was broken off clear below the head; the radial portion, figured by Shaw, appears to be made up, as far as can be ascertained by present examination, of two distinct bones, each about one and three eighths inches in length, covered with a corrugated skin, and ending at the carpal extremity in a small horny claw, supported on a short ungual (heel) bone, the two portions in conjunction measuring about three eighths of an inch.

"To the radial portion of the wing, several feathers are attached of the same character as those of the other parts of the body; but the feathers above and behind this rudimentary wing are longer than those of any other part of the body, and, being directed forwards and downwards, entirely cover and conceal this small and useless wing.

"As far as I am able to judge by the preserved skin, the *femur* was probably three inches in length, the tibia about five inches; the articulation of the tibia with the *tarsus* is one and three fourths inches below the end of the body, and on a line with the pendent ends of the plumage of that part. The *tarsus* is three inches in length, and measures two and one eighth inches in circumference. The other bones of the leg appear to have been like the tarsal bones thick and strong. The tarsi are covered with hard and dense reticulated scales, larger in size, and arranged in transverse lines in the front and behind, but smaller and more irregularly distributed on the sides.

"No publick or private collection is understood to possess another specimen of this singular bird; and it might reasonably be expected that so defenceless an animal must soon fall, even to extermination, when assailed by powerful and ingenious enemies."

The apteryx is not represented as being generally distributed over either of the two islands of which New Zealand is composed, but to be found chiefly in the mountainous, dry, and stony tract near Cape East, on the eastern side of the northern island. The mountains there are not near so high as in the southern island; their climate is warmer, and they are interspersed by rich grounds, though without those forests of large trees which are found on the slopes of the more alpine places and in the morasses

between. The climate is rather humid, and that, with other circumstances, leads to the conclusion that, under small stones and in the shallow crevices of rocks, there should be an abundant, and, generally speaking, a perennial supply of insect food; and it is probable that such is the principal subsistence of the apteryx.

Voyagers who have seen the feathers adorning the mantles of the chiefs, have considered them as belonging to a species of emew, smaller and brighter in the colour than the emew of Australia; and the feathers are certainly very much of the same structure. But it must be borne in mind that neither the emew nor the apteryx has any of what may be called working feathers, conducive either to motion through the air, or to the direction of motion along the ground. The whole of their feathers, except in so far as, in the apteryx especially, the bristle-like ones may protect the eyes and the proximal part of the gape from injury, are wholly clothing feathers; and therefore the only inference that can be drawn from the similarity of structure is, that the two birds are exposed to pretty nearly the same kind of weather. Their feathers are a sort of pendent thatch, well calculated for throwing off the heavy rains which fall in those countries, and their loose and flocculent nature makes them also a good protection against the heat of the sun during the dry season. Thus far there is a resemblance between the two birds; and thus far we can see the necessity for that resemblance, in the analogy of the climates. But here the parallel ends; and in the present state of our knowledge, we are not able satisfactorily to continue it by a reference to any other known species of bird.

REVOLUTIONARY REMINISCENCE.

JOHN HANCOCK.

THE memory of this great patriot, statesman, and orator, has been most grossly neglected; while hundreds, whose services in the cause of independence were not a tithe to his, have been eulogized to the skies, and live on canvass, and in marble, this great patriot's name but seldom finds a place, even in our cups, when celebrating that freedom he was among the very first, if not *the* first, to risk his life in obtaining. We have for years noticed this neglect with feelings of unfeigned regret. Never was a man more beloved by any people than Hancock was by the people of Massachusetts. With the exception of a single year, when Bowdoin was *put* in, he was for sixteen successive years elected their governour, and closed his patriotick and illustrious life in that high station. Hundreds of times have we seen him, so worn out and crippled by disease that he could not stand, taken from his carriage into the arms of two faithful servants, (who regularly attended for the purpose,) and carried up to the council chamber, a distance of nearly fifty yards from the street. The last time he addressed his fellow citizens, was the most impressive scene we ever witnessed. A town, meeting was called, upon a question of great excitement. Old Fanueil hall could not contain the people, and an adjournment took place to the old south meeting-house; Hancock was brought in, and carried up into the gallery, where the Hon. Benjamin Austin supported him on the right, and the celebrated Dr. Charles Jarvis upon the left, while he addressed the multitude. The governour commenced by stating to his fellow-citizens, that "*he felt*" it was the last time he should ever address them—that "the *seeds of mortality were growing fast within him.*" The fall of a pin might have been heard, such a deathlike silence pervaded the listening crowd during the whole of his animated and soul-stirring speech, while tears ran down the cheeks of thousands. The meeting ended, he was conveyed to his carriage, and taken home, but never again appeared in publick; his death followed soon after. The corpse was embowelled and kept for eight days, to give an opportunity to the citizens from the most distant parts of the state, to render the last tribute of respect to his memory. They came by thousands, and tens of thousands; the procession was an hour and a half in passing. The post of honour, among the military, was given to the Concord light-infantry, under Capt. Davis, the same who commanded them on the ever memorable 19th of April, '75. It was the most solemn and interesting, and incomparably, the largest funeral procession we ever saw. Samuel Adams, lieutenant-governour, became governour, *ex officio*, by the death of Hancock, and followed the bier (there were no hearses with nodding plumes in those days) as chief mourner; but the venerable patriot could not bear the fatigue, and was compelled to retire from the procession.

Hancock before the revolution was a man of vast fortune, and although he permitted it to flow, in the cause of his country, like a river, he had still enough left to support a splendid establishment, and lived and entertained like a prince. His generosity was unbounded—we well remember that one evening in each week during summer, a full band of musick, at his own expense, entertained in front of his venerable stone mansion, at the head of the common, to entertain the citizens who were promenading on the mall. He seldom left Boston to visit at any distance; but when he did, he was always escorted by a volunteer troop of cavalry, who held themselves in readiness for that purpose. He was very fond of a joke and repartee, so much so that a worthy citizen of Boston, Nathaniel Balch, Esq., a hatter, who never failed to appear among the invited guests at his hospitable board, obtained the unenvied appellation of "*the governour's jester.*" The celebrated Brissot in his travels in the United States, speaks of his meeting this gentleman at Hancock's table; and such was the mutual attachment between the governour and Mr. Balch, that if the former was called away, no matter what distance, 'Squire Balch attended him like his shadow, which the following circumstance most happily illustrates: Governour Hancock was called on to visit the then province of Maine, on which occasion he travelled in state, and was attended by the Hon. Col. Orne, one of the executive council, and N. Balch, Esq. Their arrival at Portsmouth, N. H. was thus humorously announced:

"On Thursday last, arrived in this town, Nathaniel Balch, Esq., accompanied by his excellency, John Hancock, and the Hon. Azore Orne."

A late N. Y. Evening Star states: "We have had left for us, at our office for inspection, the principal commission, appointing John Hancock first major-general of the Massachusetts Colony. It is dated May 30, 1776." Cincinnati Evening Post.

ELECTRICITY.

ELECTRICITY originally denoted that power which amber possesses, of attracting light bodies when excited by rubbing, or, as it is scientifically called, by *friction*. It is so denominated from the Greek word *electron*, which means amber.

Subsequent discoveries have proved, that this power is not confined to amber, but resides in glass, and all other vitreous substances, resin, sealing-wax, &c.; and that all bodies with which we are acquainted contain a portion of a fluid, called the electrick fluid, which is produced by *friction*, and, in a dark room, has the appearance of small flashes of divergent flame darting in the air.

Bodies that can be excited to electricity are called *electricks*, and as they do not convey electricity from one body to another, they are also called *non-conductors;* such as cannot be excited are termed *non-elasticks*, and, as they are capable of conveying electricity from one body to anothur, they are also called *conductors*. Of the former, the principal are, glass, precious stones, amber, sulphur, resinous substances, wax, silk, cotton, hair, feathers, oils, &c.; of the latter, all metals, charcoal, animal fluids, water, crystallized salts, &c. When bodies possessing their proper quantity of the electrick fluid come in contact, no effect is produced; but when two bodies, one possessing greater and the other less than the proper quantity, approach near each other, a discharge takes place, and the equilibrium is restored.

A body possessing more than its proper quantity of electricity, is said to be *plus*, or positively electrified; and a body containing less than its proper quantity of this fluid, is said to be *minus*, or negatively electrified. Bodies electrified either of these ways repel each other; but if some are electrified *plus* and others *minus*, they attract each other: and again, if one body is not all electrified, and another is electrified *plus*, they also attract each other.

Before the invention of the electrick machine some experiments were made by means of a glass tube, thus: take a glass tube, not less than half an inch in diameter, rub it briskly with a dry silk handkerchief, or piece of flannel, backward and forward, and it will alternately attract and repel several times a downy feather, or any other light substance; the tube must be clean and dry. If the knuckle be presented to the closed end of the excited tube, a snapping will be distinctly perceived, and the finger will receive a slight shock; should the experiment be made in the dark, the snap will be accompanied with a luminous spark, passing between the finger and the glass.

Let a large stick of red sealing-wax be rubbed with dry warm woollen cloth; and it will be perceived that the suspended feather presented to it will be first attracted and then repelled, as in the former case. But if the feather, after having been positively electrified by contact with the excited glass tube, be presented to the sealing-wax, it will not be repelled, as it would be by the tube, if again presented to it, but would be more strongly attracted by the sealing-wax, than when in its natural state, plainly demonstrating that since it has been positively electrified by the glass, the sealing-wax which now attracts it must be in a negative state. This experiment may be reversed by presenting the feather in its natural state to the excited sealing-wax, and then bringing it near the glass tube, by which it would be instantly attracted; for having been negatively electrified by contact with the sealing-wax, it attaches itself to the positively electrified tube.

If a black and a white riband, each about a yard in length, and perfectly dry, be applied together, and then drawn several times between the finger and thumb so as to rub against each other they will be found to adhere, and if separated by pulling one end from the other, they will fly together again. While they remain united they manifest no signs of electricity; for being in opposite states, they neutralize each other; but if completely separated, each will exhibit its peculiar electricity, those bodies being attracted by the one riband which are repelled by the other. When the experiment is made in a dark room, flashes of light are perceived from the surfaces of the ribands, together with a rustling noise. The black riband in this case will be found to be negatively electrified, and the white riband positively. By taking ribands from the same piece and of equal length, and drawing one of them lengthwise at right angles across the other, the former will acquire positive and the latter negative electricity. The friction of liquids or gases against solid bodies will excite electricity; and the effects of contact, pressure, or friction of any one body against another will in some degree produce the same appearances being variously modified according to circumstances.

Conductors are so called, because, though they cannot be excited to electricity, yet, when brought in contact with, or even near to an excited electrick, they will receive from it a portion of the electrick power, and thus become capable of exhibiting appearances similar to those of the electrick.

Thus, if a metallick rod, with one end pointed, and having a knob at the other, be placed with its point towards an excited electrick, the rounded end will attract light bodies and emit sparks. By these conductors, the electrick fluid may be conveyed to any distance from the excited body; if a chain be attached by one end to an excited electrick, and the other end be held by a person stationed miles distant, (should the chain be long enough,) that person will experience a shock, and draw some electrick sparks. Among solid bodies, the metals are all good conductors, though their powers of conducting appear to be influenced by temperature and other circumstances. Linen, straw, and wood charcoal, are likewise good conductors: while glass, resins, sulphur, silk, wool, sugar, fat, and various other substances, are either non-conductors, or possess the conducting power in a very imperfect degree.

The same substances in different states are conductors, and non-conductors: thus, green wood is a good conductor; baked wood is an electrick; charcoal is a conductor, but wood-ashes are an electrick. When a body is placed in contact with an excited electrick, it cannot be charged with electricity while it communicates with the earth by means of a conductor, as a table, &c.; to electrify it, therefore, it must be placed on a non-conductor, as a stool or table with glass legs, a cake of wax, resin, or the like; it is then said to be *insulated*.

Bodies surcharged with similar degrees of electricity, when brought near, repel each other; while a body that is positively electrified, or surcharged with the electrick fluid, will attract another body that is

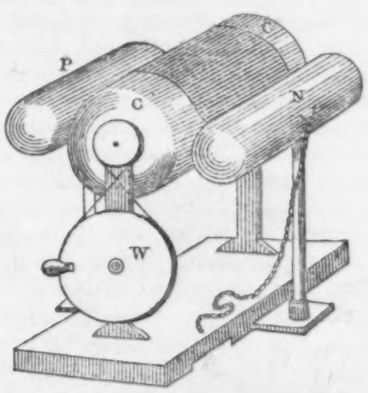
negatively electrified, or deprived of some of its electrick fluid.

The reason of this seems to be, that the body which has more than its share of this subtile fluid attracts the one that has less, in order to impart this superfluity and thus restore an equilibrium.

The friction of a conductor and non-conductor tends to destroy this equilibrium, one of the bodies always acquiring positive and the other negative electricity.

These and other wonderful properties of the electrick fluid having been discovered, philosophers began to contrive machines, for the purpose of making more important experiments; and glass having been found most suitable to the purpose, was universally employed in their construction.

At first, the electrical machine was in the form of a globe of glass; next, of a circular plate of glass; but the present approved form is that of a cylinder of glass as in the annexed figure.



It consists of a glass cylinder, C C, from ten to sixteen inches in diameter, and about twenty inches in length, supported, so that it may turn on its axis, on two pillars of glass, fixed to a wooden stand. Two metallick conductors, P, N, equal in length to the cylinder, and about one third of its diameter, are fixed parallel with it, on either side, upon two glass pillars, which are cemented into two separate pieces of wood, sliding in grooves, so that they may be respectively adjusted at any distances from the cylinder required. To one of these conductors, N, is attached a cushion an inch and a half wide, and about as long as the cylinder, against which it may be made to press by means of a bent spring; and to the upper part of it is sewed a flap of oiled silk, which extends loosely over the cylinder, to within an inch of a row of brass pins or pointed wires proceeding from the side of the opposite conductor. The conductor to which the cushion is attached is called the negative conductor, and the other, which by means of its points collects electricity from the glass, is named the positive conductor, and also the prime conductor. The cylinder may be made to revolve, in the direction of the silk flap, simply by a winch fitted to it, or multiplying wheel, W.

In order that the machine may be worked with the greatest effect, the cylinder and every other part must be made perfectly clean and dry; and as it may be supposed, it displays the greatest power when the air around it is quite free from moisture. To augment the efficacy of the machine, it is usual to apply to the cushion an amalgam of zinc and tin, made by melting together one part of tin and two of zinc, and mixing them in a heated iron mortar with six parts of hot quicksilver; and after the compound has been reduced by trituration to a powder, it must be made into a stiff paste, with pure hog's lard.

When it is requisite to obtain positive electricity, the cushion or negative conductor must be connected with the wooden stand of the machine by a chain or wire; and thus the electrick fluid is supplied from the earth as fast as it is drawn off by the points of the prime conductor. If it be required to produce negative electricity, the cushion must be insulated by removing the chain, and attaching it to the prime conductor P, whence the electrick fluid will pass to the earth, and the conductor N will become negatively electrified.

There is another form of the electrical machine, consisting of a circular glass plate, fitted up so that it may be made to revolve between two rubbers. It is a powerful instrument, but is only adapted for producing positive electricity.

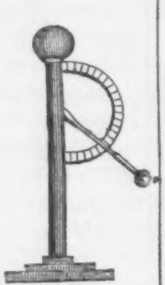
M. Beudant has described a machine that has the advantage of being less costly than those of glass, and exempt from injury by accident. It may be constructed by taking two yards of varnished taffeta, and sewing together firmly, with a flat seam, the two ends, so as to make it like what is called a jack towel or roller; and it is then to be stretched over two wooden rollers, one of which being turned with a winch, the taffeta will pass continuously over them, cushions of hare or catskin being placed so as to rub against it; and a conductor with points may be placed near its surface to collect the electricity produced.

When an electrical machine, as above described, with a glass cylinder, has been properly prepared, and during a dry state of the atmosphere, if the cylinder be made to revolve with a certain degree of velocity, sparks and vivid flashes of light will be perceived passing over the cushion to the conductor; and if the knuckle be presented to the conductor, sparks, with a sharp report, will proceed from it to the knuckle, causing a peculiar and slightly disagreeable, but momentary sensation. The light is supposed to be occasioned by the sudden compression of the air, by the transit of the electrick fluid; and it is accompanied by the development of heat, for gunpowder, alcohol, fulminating silver, and other highly inflammable bodies may be set on fire by means of the electrick spark.

The operation of the electrical machine depends on the glass becoming positively electrified by friction against the rubber, when the cylinder or plate is put in motion, and the rubber or cushion consequently becoming negatively electrified. The positive electricity thus acquired by the glass is regularly attracted and carried off by the metallick points of the prime conductor, in which it becomes accumulated. But if both conductors be insulated, so that the cushion connected with the negative conductor cannot continue to derive electricity from the earth or surrounding objects, it will soon be exhausted and cease to afford electricity to the other conductor by means of the glass cylinder. In order, therefore, that the supply may be kept up, it is requisite that the cushion should communicate with the earth, or with the floor, by some good conducting medium, as a metal chain or wire. Hence it appears that the electricity of either conductor must be extremely

weak, when both of them are insulated; that if one conductor alone be insulated, the power of the other will be proportionally augmented; that the cushion and the glass must always be in opposite states, the one being positive and the other negative; and that the opposite electricities are exactly in that proportion which will cause them when combined to neutralize each other. The effects produced by the positive conductor, or that opposed to the cylinder, will be similar to those of an excited glass tube; and the effects of the negative conductor, or that connected with the cushion, will correspond with those of an excited stick of sealing-wax. If two suspended pith balls be attached to either conductor, they will be observed to repel each other, manifesting the same kind of electricity; but if one ball be attached to the positive, and another to the negative conductor, they will attract each other. If, however, the two conductors be connected by a metal rod, their opposite electricities will neutralize each other, and no signs of either state will be exhibited. The passage of a spark indicates the annihilation of the opposite states of electricity previously existing in the bodies between which the spark passes, and which has been already shown to be the effect of induction on the approach of bodies towards each other. Thus, the knuckle, when presented to the positive conductor, becomes negatively electrified; and when the opposite electricities thus induced, become sufficiently intense, the appearance of the spark announces that the state of excitation is terminated.

For the purpose of measuring the degree of electricity imparted to any body, instruments called electrometers have been invented; the simplest of these consists of two fine threads with a pith or cork ball at the end of each; when electrified, they will recede from each other to a distance in proportion to the quantity of electricity excited.



But the most useful instrument of this kind is the quadrant electrometer. The stem is usually made of wood, and the semicircle of ivory, the lower half of which is divided into ninety degrees; from the centre of the semicircle hangs a rod of light wood, with a knob at the end, of pith or cork, to serve as an index.

If this electrometer be placed in contact with the body to be electrified, the index will rise as the charge proceeds, until it points to ninety degrees, which indicate the greatest intensity of electricity.

(To be continued.)

COTTON.

Cotton is a soft vegetable down, which is contained in the seed vessels, and envelops the seed of the cotton plant, which grows in most parts of the world, where the climate is sufficiently warm. There are many species of this plant. Mr. Bennet, a cotton cultivator in Tobago, who was an accurate and indefatigable observer of the plant, remarked more than a hundred varieties, and considered them never ending. Of the species already enumerated, it is most probable that some are only varieties occasioned by the different effects of culture, soil, or climate, on a plant which has been under cultivation for so many ages; and it is scarcely possible to determine what plants, so differing, can be regarding as forming separate species, or as being only simple varieties: while at the same time the information of the scientific man is so distinct from that of the practical planter, that it becomes a subject of no small difficulty to combine the knowledge obtained from each into one accordant whole.

To the cotton planter it is a matter of much interest to become acquainted with all these distinctive varieties, as some are incomparably more valuable than others, in the quantity and quality of their produce. Some yield their downy harvest twice in the year, others only once. Some bear cotton of a long and delicate fibre, and of a beautiful whiteness. while others are found to be short and coarse, and of a bad colour. For want of this knowledge, so little regard is in general paid to the selection of the seed, and the improvement of the stock, that the careful cultivator in first forming a plantation is mortified at finding an endless variety among his plants, and can only hope to improve his plantation by his own personal experience, at the cost of much labour and many failures.

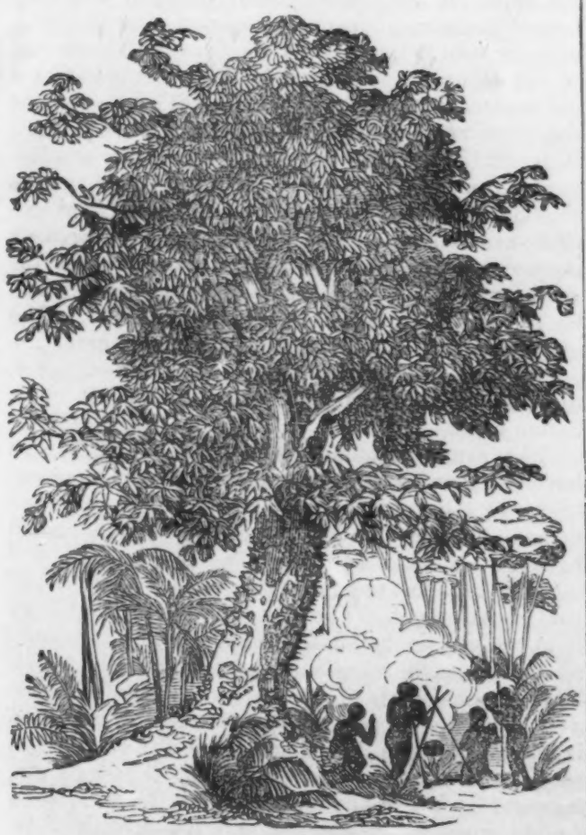
[Tree Cotton—Gossypium Arboreum.]

Among those species which are most remarkable we will mention the *Gossypium arboreum*, or tree cotton, which, if left without being pruned, to luxuriate to its full height, has sometimes attained to fifteen or twenty feet. The leaves grow upon long hairy foot-stalks, and are divided into five deep, spear-shaped lobes. This shrub is a native of India.

The *Gossypium Indicum*, or Indian cotton, is another species not very dissimilar to the last; it has not a ligneous stem, and its branches are more hairy, especially at the upper parts. The shape of the leaf likewise differs somewhat from that before described, this being divided into three convex lobes. The stem rises to the height of ten or twelve feet, and continues in full bearing during several years.

[Shrubby Cotton—Gossypium Religiosum.]

Another species is distinguished by the name *Gossypium religiosum*. No reason is assigned why Linnæus should have bestowed on it so singular a title. The solution of the question was thought to be discovered, on reading in Stedman's Surinam, that the negroes on the coast of Guinea have much veneration for the wild cotton-tree; unfortunately, however, on inquiring farther, we find that the tree associated with religion by the Africans, is the lofty



[Silk Cotton Tree—Bombax Ceiba.]

bombax, bearing no similitude to this diminutive plant, but resembling, though far surpassing our largest oaks in elegance and magnitude. The exalted dimensions and outspreading branches of the African bombax have insured the favour and reverence in which it is held among a simple people, who, having "no long drawn aisle or fretted vault" raised for the observances of religion, have consecrated a natural temple, under the ample shade of which their *gadoman*, or priest, delivers his lectures to the assembled audience. The little shrub called *G. religiosum*, only attaining to three or four feet in height, cannot therefore, by the most ingenious conceit, be made to show any connexion with the custom of the natives of Guinea, and we must consent to leave the origin of its present designation in obscurity. Lamarack calls this species *tricuspidatum*. Its stem is upright, of a slight red colour, and very hairy. The leaves are sometimes entire, but more frequently divided into three or four not very deep lobes. The flowers grow in a similar manner to the others, but differ in colour, being first white, then changing to rose, and finally to red. It is not known of what country this is native. Lamarack believes that it is indigenous to the lowest latitudes of America. Cavanilles supposes that it comes from the Cape of Good Hope. It is cultivated in the Mauritius. There are two varieties of this species—in the one the cotton is extremely white, in the other it is of a yellowish brown, and is the material of which the stuff called nankin is made; it may therefore be presumed that this species is a native of China, whence nankin cloths are obtained. The yellowish brown colour of Chinese nankins is therefore the natural colour of the cotton, and is not imparted by dying. The name is derived from the city of Nankin, to which place the manufacture of these cotton stuffs was peculiar.

The colour of the nankins was long thought to be artificial, and Braam, who travelled in China with a Dutch embassy at the end of the last century, informs us, that the European merchants sent to request that the nankins for their markets might be died of a deeper colour than those last received. The fact was, the Chinese had made the last lighter than usual in consequence of a great and sudden demand, which obliged them to mix their common white cotton with the yellowish brown.

[Cotton—Gossypium Herbaceum.]

The kind however most cultivated in the United States, is the *Gossypium herbaceum.* It is an annual plant, which grows to a considerable height, and has leaves of a bright green colour, marked with brownish veins, and each divided into five lobes. The flowers have only one petal in five segments, with a short tube, and are of a pale yellow colour, with five red spots at the bottom. The cotton pods are of somewhat triangular shape, and have each three or four cells. These, when ripe, burst open,

[Cotton; showing a pod bursting.]

and disclose their snow-white or yellowish contents, in the midst of which are contained the seeds, in shape somewhat resembling those of grapes. The fibres of cotton are extremely fine, delicate, and flexible. When examined by the microscope, they are found to be somewhat flat, and two-edged or triangular. Their direction is not straight, but contorted, so that the locks can be extended or drawn out without doing violence to the fibres. These threads are finely toothed, which explains the cause of their adhering together with greater facility than those of bombax and several *apocyneæ*, which are destitute of teeth, and cannot be spun into thread without an admixture of cotton.

In the southern parts of the United States the cotton cultivation is distinguished into three kinds—the *nankeen cotton*, so called from its colour; the *green seed cotton*, producing white cotton with green seed; and the *black seed cotton.* The two first kinds grow in the middle and upper country, and are called *short stapled cotton:* the last is cultivated in the lower country, near the sea, and on the isles near the shore, and produces cotton of a fine white silky appearance, very strong, and of a long staple.

In regard to the cotton district or region of our country, it has been raised in Illinois, and in Pennsylvania, and it is certain that cotton has long been cultivated in St. Mary's county, Maryland, where the *Baltimore* family and their companions made the first settlements, and in Talbot county, in that state, as has been mentioned, and that it was raised during the revolutionary war, in useful quantities to meet the wants of that time in the southern county of Cape May, in New Jersey. As that county is nearly surrounded by the salt bay of Delaware, and the ocean, it is more generally exempted from frost than land in the same latitude remote from the sea. Cotton has always been steadily raised, though in small quantities for family use, in the county of Sussex, Delaware, on the head waters of the Choptank. The country of the United States, from the 39th degree of lat. to the southern extent of Louisiana cession on the Rio Bravo del Norte, may be considered as the *cotton region* of the United States. These climactorial facts and characteristicks are of great importance, and should form a constant subject of reflection and comparison, as to capacities in production, between the United States and all other countries.

The plant of all the three kinds is an annual in the United States, but the perennial may grow in the most southern part of Louisiana, on the Rio Bravo, or in the peninsula of East Florida. The planting season in latitude 32 to 35 degrees, begins in the latter part of March, or early in April. The plough is used to break up the soil, and the drill to plant at distances of about five feet. The quantity of seed for an acre, is nearly one bushel. About the middle of June the plants blossom; which is followed by pods, and new blossoms and pods, till the frosts check and destroy the unripe. Just before the middle of September cotton is topped above the lowest blossoms, because, after that time, no blossoms mature to bearing. This gives the sun access, which opens the pods, and the force of vegetation is not wasted in abortive growths. The harvest on the coast begins early in August, and in September is general in the middle and upper country, continuing till December. The wool is picked and put into shoulder bags of the coarsest linen or stuff, and carried to the cotton house, and thence in a few days is spread to dry on a platform, which prepares the wool for the gin. The sea islands and lower country produce from 100 to 300 pounds per acre. The green seeded is equally or more productive in the upper country, and according to soil, seed and care, the acre produces from 60 to 300 pounds of clean cotton wool.

The cotton manufactures of the United States have partaken of the characteristick vigour and energies of the country, and as the subject of cotton manufactures is one of so much interest, we shall here give a detailed account of the process, and mention the most important machines by which each part is performed. The first thing to be considered is to cleanse the cotton from seeds, which is accomplished by machines called the *roller gin* and *saw gin.* The essential parts of the first are two small cylinders, revolving in contact, or nearly so. The cotton is drawn between the rollers, while the size of the seeds prevents them from passing. The saw gin, invented by Mr. Whitney, is used for the black seed cotton, the seeds of which adhere too strongly to be separated by the other method. It is a receiver having one side covered with strong parallel wires, about an eighth of an inch apart. Between these wires pass a

number of circular saws, revolving on a common axis. The cotton is entangled in the teeth of these saws, and drawn out through the grating, while the seeds are prevented by their size from passing. The cotton thus extricated is swept from the saws by a revolving cylindrical brush, and the seeds fall out at the bottom of the receiver. After the cotton has been ginned, and picked or batted, that is, beat up and separated into a light uniform mass, the next operation of the manufacturer is *carding*, which serves to equalize the substance of the cotton, and dispose its fibres in a somewhat parallel direction. The *carding engine* consists of a revolving cylinder, covered with cards, which is nearly surrounded by a fixed concave framing, also lined with cards, with which the cylinder comes in contact. From this cylinder, called the *breaker*, the cotton is taken off by the motion of a transverse comb, called the *doffing plate*, and passes through a second carding in the *finishing* cylinder. It is then passed through a kind of funnel, by which it is contracted into a narrow band or sliver, and received into tin cans in the state of a uniform, continued carding. The next step in the process is called *drawing* the cotton. The machine employed for the purpose, called the *drawing frame*, is constructed on the same principle as the spinning frame, from which the idea of it was taken. To imitate the operation performed by the thumb and finger in hand spinning, two pairs of rollers are employed; the first pair, slowly revolving in contact with each other, are placed at a little distance from the second pair, which revolve with great velocity. The lower roller of each pair is furrowed, or fluted, longitudinally, and the upper one is covered with leather, to give the two a proper hold of the cotton. If a carding be passed between the first pair, it will be merely compressed by the pressure of the rollers; but if it be then passed through the second pair, moving with two or three times the velocity of the first, it will be drawn twice or three times smaller than it was when it entered the first rollers. The relative velocity of the two pairs of rollers is called the *draught* of the machine. Several of these drawings are then passed together through rollers in the same manner, *plying* (coalescing) as they pass, and forming a single new drawing. The drawing and plying are several times repeated, and have the effect of arranging all the fibres of the cotton longitudinally, in a uniform and parallel direction, and doing away all the inequalities of thickness. In these operations, the cotton receives no twist. *Roving* the cotton, which is the next part of the process, gives it a slight twist, which converts it into a soft and loose thread, called the *roving*. The machine for performing this operation is called the *roving frame* or *double speeder*. In order to wind the roving upon the bobbins of the spindles, in even cylindrical layers, the spindle rail is made to rise and fall slowly, by means of heart wheels in the interior of the machine. And, as the size of the bobbins is augmented by each layer, the velocity of the spindles and of the spindle rail is made to diminish gradually, from the beginning to the end of the operation. This is affected by transmitting the motion of both, through two opposite cones, one of which drives the other with a band, which is made to pass slowly from one end to the other of the cones, and thus continually to alter their relative speed, and cause a uniform retardation of the velocity. The bobbins are now transferred to the *spinning frame*, which has a double set of rollers, like those described in the account of the drawing and roving frames, and which, operating in the same manner as in those machines, extend the rove, and reduce it to a thread of the required fineness. The twist is given to this thread by flyers, driven by bands, which receive their motion from a horizontal fly wheel, or from a longitudinal cylinder. The yarn produced by this mode of spinning is called *water twist*, from the circumstance of the machinery, from which it is obtained, having been, at first, generally put into motion by water. In 1775, the *mule-jenny* or *mule* was invented by Samuel Crompton, of Bolton. The spindles are mounted upon a moveable carriage, which recedes when the threads are to be stretched, and returns when they are to be wound up. The process of stretching is intended to produce threads of the finest kinds, and consists in forcibly *stretching* portions of yarn, several yards long, in the direction of their length. The purpose of it is to reduce those places in the yarn which have a greater diameter than the rest, so that the size and twist of the thread may become uniform throughout. Here ends the process of spinning, and that of weaving begins."

YOUNG HYSON IN OHIO.

Mr. John Platt, of Marietta, Ohio, advertises in a paper of that place that he has succeeded in cultivating the genuine tea-plant of China. He has, he says, raised the plant for ten years past at Marietta, and after a series of expensive experiments, has been fully successful in discovering the art of drying and manufacturing the leaves into tea of a quality quite equal to the imported Young Hyson. He offers, gratuitously to furnish fresh seed of the last year's growth to any gentleman desirous of pursuing the cultivation.

FAREWELL OF THE SEMINOLE CHIEF.

Land of our love, farewell!
Fields, where the palm-grass waves, and thickets green
Homes, lowly huts, where joy, and grief have been,
Cool springs, sweet waters flowing, silvery lakes,
Tall trees, with blossoms white as north snow flakes,
Wild vines, fair flowers—farewell!

All living things, farewell!
Learn, faithful dog, the stranger-master's call;
Suffer thou too, poor steed, the white man's thrall;
Bound on, ye gentle deer: rest in your lair,
Fierce panthers, when shall hunter rouse ye there?
Between us, peace—farewell!

Our fathers' graves, farewell!
We long to lay our bones by yours, and know
These forest birds would sing, these spring flowers blow
Above our last low bed—Oh, sweet the earth
Denied us, where our little ones had birth!
Graves of our sires—farewell!

Place of death-strife, farewell!
Broken tomahawk—the warriour's brow
Wears not the battle spirit—silent now
The deep blood stirring war-cry—bonds around
His hands, and heart, the Seminole's bound—
Fields of the brave—farewell!

Winds, dews, earth, skies—farewell!
The ship floats proudly on *our own* smooth bay,
Her broad sails fluttering long to bear away
The red man from his home—no more, no more,
Returning to his forest-belted shore.
Land of my love—farewell!

N. Y. American.

AMERICAN ANTIQUITIES.

The following description from a late number of the American Monthly Magazine, of a relict of former ages, recently found at Fall river, is extremely interesting. Since the discovery of the skeleton, we have caused careful inquiries to be made among the oldest residents of the town, to ascertain if any thing could be elicited in regard to it, but the only information we have been able to obtain is a tradition, that about one hundred years since, a party of Indians came there to search for the buried body of a chief, but were unsuccessful.

These remains were found in the town of Fall River, in Bristol county, Massachusetts, about eighteen months since.

In digging down a hill near the village, a large mass of earth slid off, leaving in the bank, and partially uncovered, a human scull, which, on examination, was found to belong to a body buried in a sitting posture; the head being about one foot below what had been for many years the surface of the ground. The surrounding earth was carefully removed, and the body found to be enveloped in a covering of coarse bark of a dark colour. Within this envelope were found the remains of another coarse cloth, made of fine bark, and about the texture of a Manilla coffee-bag. On the breast was a plate of brass, thirteen inches long, six broad at the upper end, and five at the lower. This plate appears to have been cast, and is from one eighth to three thirty-seconds of an inch in thickness. It is oval in form—the edges being irregular, apparently made so by corrosion.

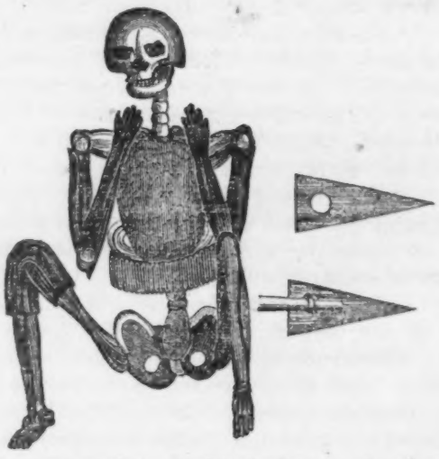
Below the breastplate, and entirely encircling the body, was a belt composed of brass tubes, each four and a half inches in length, and three sixteenths of an inch in diameter, arranged longitudinally and close together; the length of a tube being the width of the belt. The tubes are of thin brass, cast upon hollow reeds, and were fastened together by pieces of sinew. This belt was so placed as to protect the lower parts of the body below the breastplate. The arrows are of brass, thin, flat, and triangular in shape, with a round hole cut through near the base. The shaft was fastened to the head by inserting the latter in an opening at the end of the wood, and then tying it with a sinew through the round hole—a mode of constructing the weapon never practised by the Indians, not even with their arrows of thin shell. Parts of the shaft still remain on some of them. When first discovered the arro ws were in a sort of quiver of bark, which fell in pieces when exposed to the air.

The scull is much decayed, but the teeth are sound, and apparently those of a young man. The pelvis is much decayed, and the smaller bones of the lower extremities are gone.

The integuments of the right knee, for four or five inches above and below, are in good preservation, apparently the size and shape of life, although quite black.

Considerable flesh is still preserved on the hands and arms, but none on the shoulders and elbows. On the back, under the belt, and for two inches above and below, the skin and flesh are in good preservation, and have the appearance of being tanned. The chest is much compressed, but the upper viscera are probably entire. The arms are bent up, not crossed; so that the hands turned inward touch the shoulders. The stature is about five and a half feet. Much of the exteriour envelope was decayed, and the inner one appeared to be preserved only where it had been in contact with the brass.

The following sketch will give our readers an idea of the posture of the figure and the position of the armour. When the remains were discovered the arms were brought rather closer to the body than in the engraving. The arrows were near the right knee.



The preservation of this body may be the result of some embalming process; and this hypothesis is strengthened by the fact, that the skin has the appearance of being tanned; or it may be the accidental result of the action of the salts of the brass during oxydation; and this latter hypothesis is supported by the fact, that the skin and flesh have been preserved only where they have been in contact with, or quite near, the brass; or we may account for the preservation of the whole by supposing the presence of *saltpetre* in the soil at the time of the deposite. In either way, the preservation of the remains is fully accounted for, and upon known chymical principles.

The spot where they were found is on the seacoast, and in the immediate neighbourhood of "Dighton Rock," famed for its hieroglyphick inscription, of which no sufficient explanation has yet been given; and near which rock brazen vessels have been found. J. S.

THE NEW YORK LYCEUM OF NATURAL HISTORY.

Conspicuous among the institutions of a literary and scientifick nature, which add to the character of the city of New York, is the establishment, the name of which is found at the head of this short notice. For more than half a century have several of the humane and benevolent associations of this extensive metropolis, been in full and active operation, and the New York hospital has already had its historian, who, in becoming terms, has set forth its capabilities and its excellence. The same may be said of several other publick charities. The Lyceum of which it is our intention to speak more at length on a future day, was originally created by the voluntary association of a few young and enterprising naturalists, who selected the late distinguished Dr. Mitchill as their president, and shortly after obtained an act of incorporation from the legislature

of New York, during the session of 1819. From that time to the present, they have been actively engaged in the promotion of the immediate objects of their formation; to collect and preserve objects of natural history, particularly of botany, mineralogy, and zoology, and their rich cabinets testify to their zeal and energy. They have also published from time to time memoirs or annals of the proceedings of the lyceum, now amounting to three goodly-sized volumes; and the skilful affirm that many of their papers may be pronounced as among the most valuable printed by any of the literary societies of our country. Within the last few weeks their spacious edifice, situated on Broadway, has been completed, and is now fitting up with suitable and large apartments, for the meetings of the society, their cabinet of curiosities, and their library. Major Delafield is their present president; but of their new officers and plans of operation, we shall say more hereafter. We conclude with stating that we have learned, from good authority, that upon the opening of the large hall of the institution now about to take place, a discourse on the objects of the institution, and its claims to attention, as well as on the novel and peculiar points of the natural history of America, will be delivered by Professor JOHN W. FRANCIS, M. D., of New York, one of the original associates of the lyceum. Dr. Francis is well qualified to discharge the honourable trust in a becoming and satisfactory manner; and from his acquirements in the different departments of natural science much may be expected. We have given this brief notice of the lyceum because we think it entitled to the generous consideration of every lover of the natural sciences throughout the land, and in the hope that by making it, if possible, better known, we may excite to similar efforts in other great cities of the Union.

LIVING COSTUMES.

To the southward of Mapoota there exists a tribe of warlike Caffers, called Zooloes, but by the Portuguese Vatwas. The people of Delagoa call them *Hollontontes*, doubtless a corruption of Hottentots, as they come from the south. A party of these natives, visited the camp of Capt. Owen, while he was occupied in exploring their coast. The following is a description of their young chief Chinchingany, which with a few exceptions will suffice for that of the whole tribe :—

Round his head, just above the eyes, was a band of fur, somewhat resembling in size and colour a fox's tail, neatly trimmed smooth: underneath this his black woolly hair was hidden; but above it grew to its usual length, until at the top, where a circular space was shaved in the manner of the monks and Zooloes; round this circle was a thick ring of twisted hide, fixed in its position by the curling over of the surrounding hair which was altogether sufficiently thick to resist a considerable blow. On one side of his head was a single feather of some large bird as an emblem of his rank, and just above his eyebrows was a string of small white beads, and another across the nose; close under his chin he wore a quantity of long coarse hair, like the venerable beard of a patriarch hanging down on his breast; his ears had large slits in their lower lobes, and were made to

[A Hollontonte.]

fall three or four inches, but without any ornaments; these holes in the ears are often used to carry articles of value. Each arm was encircled by a quantity of hair like that tied on his chin, the ends reaching below his elbows. Round his body were tied two strings, with twisted stripes of hide, with the hair on them, much resembling monkeys' tails; the upper row was fastened close under his arms, and hung down about twelve inches, the end of each tail being cut with much precision and regularity; the lower row resembled the upper, and commenced exactly where the latter terminated, until they reached the knees. It bore altogether a great resemblance to the Scotch kilt. On his ankles and wrists

he had brass rings or bangles. His shield was of bullock's hide, about five feet long and three and a half broad; down the middle was fixed a long stick, tufted with hair, by means of holes cut for the purpose, and projecting above and below beyond the shield about five inches. To this stick were attached his assagayes and spears; the only difference in these weapons is that the former is narrow in the blade and small for throwing, the latter broad and long, with a stronger staff for the thrust.

The chief differed from his people only in the mock beard and feather which they were not permitted to wear. In concluding the description of Chinchingany's costume, it is necessary to observe that this is entirely military, and used only when upon warlike expeditions; at other times, the Hollontontes are dressed as the Kaffers, with nothing but a small leathern or skin purse, not two inches in length, used as by the Delagoa tribes, or as their modesty dictates; the appearing without which, among some of the Kaffer tribes, is considered such an outrage upon decency, that the person witnessing it is justified in putting the offender to death. The feeling of shame thus appears to be increased in proportion as its seat is limited. These were fine negroes, tall, robust, and warlike, in their persons, open, frank, and pleasing in their manners, with a certain appearance of independence in their carriage, infinitely above the natives with whom the party had hitherto communicated.

ORIGIN OF CHESS.

CERTAIN Indian tyrant became hateful to his subjects from his cruelty and lawless oppressions, and all advice, when offered, was fatal to the adviser; when Sessa, a sage philosopher, undertook the perilous task of curing the Tyrant of his hateful temper; for this purpose, he invented the game of chess, wherein he shows the impotence of the king, in that game, when unassisted by his subjects. The fame of this invention soon reached the tyrant's ears, as was intended, and he sent for Sessa to teach it to him, who instantly obeyed. In the course of the lesson the despot's eyes were opened, and he congratulated himself on being as he imagined, his own discoverer of what was real wisdom. The game became his favourite pastime: he was attached in friendship to the philosopher, and soon became a mild and good sovereign.

AMERICAN LANDSCAPE.

[View of Cooperstown, Otsego County, N. Y.]

THE village of Cooperstown, one of the prettiest places in the western part of the state of New York, is situated at the southwestern extremity of the Otsego lake, and is celebrated in the Pioneers as Templeton. The following particulars in regard to it, are from the pen of the distinguished Cooper:—

"Previously to the Revolution, the site of the present village was occupied as a station for the Superintendant of Indian affairs, who was the patentee of the land for many miles around it. Nothing like a permanent settlement, however, was made.

"In 1785, the late Judge Cooper first visited the spot, accompanied by a party of savages. He had become interested in the property as the owner of debts secured by the estate. In 1786, having become possessed of the fee of twenty-six thousand acres, including the village plot, he commenced a settlement, which had a rapid growth. In 1792, the county of Otsego was formed from the county of Montgomery, and Cooperstown, then a village of four or five hundred inhabitants, was made the county town. The place has not grown essentially since the year 1800, at which period it was one of the largest villages west of Schenectady, containing about one thousand souls. It has less than twelve hundred at present, though I think the population including some houses that lie just without the village boundaries, though quite within the village society, is not far from thirteen hundred.

"It has greatly improved since 1800, and materially, within two or three years. Stone and brick are much used in the construction of buildings. Cooperstown contains several good houses, some of which have been built many years. Otsego hall, the largest and one of the oldest houses, and the one that you most probably feel the most desire to have some information about, was built near the close of the last century. It has been lately repaired, and a good deal altered by myself. It was the residence of the late Judge Cooper, and since his death, of different members of his family. For the last few years, the two last excepted, it was not inhabited at all, except by a person who had charge of it. Applehill, Leheland, Woodside, Fenimore, the Locusts and Edgewater are all pretty places, and some of them very beautiful.

"The manner in which Gen. Clinton, the father of De Witt Clinton, caused a dam to be made at the outlet of the lake, in order to pass his brigade down the Susquehanah, is probably known to you and is worthy of being commemorated."

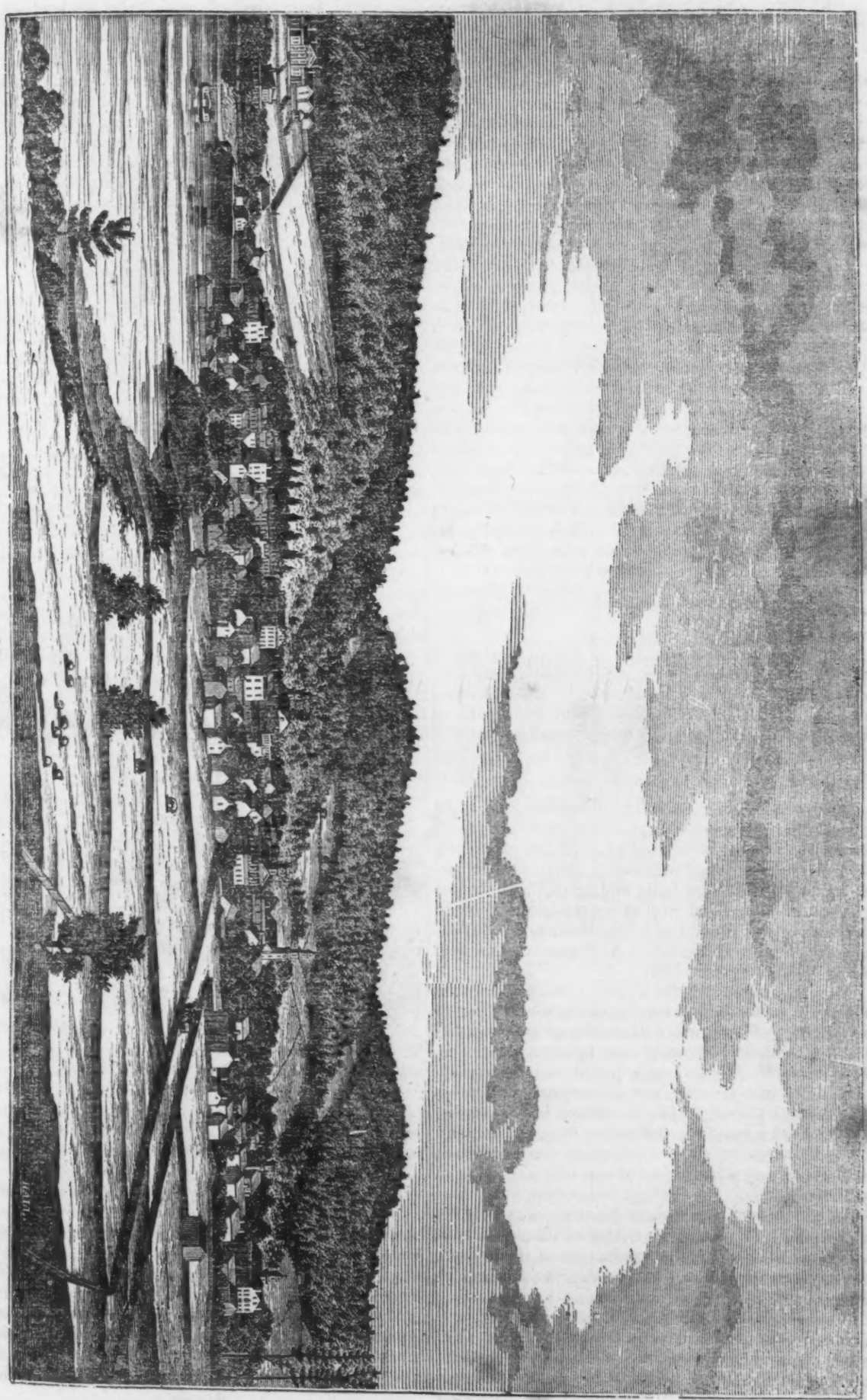
For the Family Magazine.

STANZAS.—By Mrs. Lydia Baxter.

I looked and saw a lovely flower,
Upon a slender stem;
Its leaves were moistened by a shower,
And beauty clothed the gem.

I looked again, and lo! the leaves
Had fallen to the ground,
Were scattered by the envious breeze—
No fragrance there was found.

This lesson taught my heart how frail
Were beauty, time, and youth;
It bade me look where joys ne'er fail,
And grasp eternal truth.



[Cooperstown.]

THE FIVE SENSES.

THE SENSE OF SMELLING.

SMELLING is more simple and limited in its offices than any of the other senses, and contributes more to the luxury of life, than any thing which might be regarded as directly necessary to its existence. It may be briefly defined as that faculty by which the mind is enabled to perceive the effluvia of bodies, and by it to infer their presence, or judge of their peculiar qualities. In the larger animals, its power would seem to be proportioned to the strength or weakness of the sight, modified, also by the peculiar wants of the animal. Thus, in the bat tribe, whose sight is weak, the organs of smell are developed in an extraordinary degree. The mole, also, which is nearly blind, has very strong powers of smell. To this it might be objected, that the family of hounds, and "wild beasts" in general, both smell and see with equal degrees of strength; but we answer that although their visual powers may be strong, the perfect scent which they possess is necessary, because their prey is, in almost all cases, either hidden, or beyond the range of sight. Smelling may, therefore, be regarded as a sort of a handmaid to sight; and in the case of man, it gives a finish and beauty to his visual perceptions, which those who have inhaled the fragrance of a clover-field, when

"Vernal showers awake a rich perfume,"

will be very ready to acknowledge.

We have said that smelling is the perception of the effluvia of bodies by the mind. Let us now consider the subject more minutely, in the following order:—1, the objects of smell; 2, the organs of smell; and 3, the mode in which smelling is performed.

1. THE OBJECTS OF SMELL.

As far as human research has proceeded, it would appear that *all* substances, whether of a solid, fluid, or aerial form, are composed of particles of matter, in different degrees of cohesion; and that these particles admit of division again and again, till all known powers of separation are at an end, and thought perishes in the attempt to follow them to the threshold of infinite littleness. A few examples will make this plain:—

One thousandth part of a grain of tallow, burnt in the flame of a candle for *one moment*, would illuminate a circle of four miles diameter, so as to be distinctly visible to persons placed in every part of it. Let the tropical seas cast a putrid body upon the shore, and in a few minutes a company of vultures will emerge from the distant horizon, and, spanning the heavens straight as an arrow flies, fall directly upon it. Drop a grain of carmine into a gallon of water, and every portion of it will be visibly tinged with the colour.

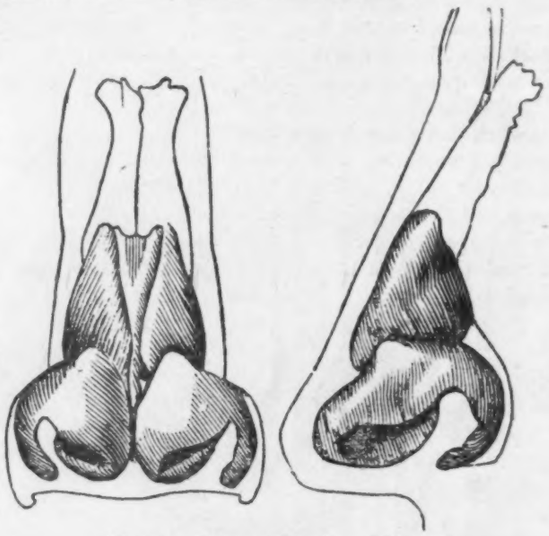
In all these cases, matter has been infinitely divided, and it is to such a division of the constituent atoms of bodies, that the production of the effluvia we have mentioned is to be traced. We shall, however, quote a few more examples:—

Voyagers can usually *smell*, at the distance of hundreds of miles, the coast they are approaching. Negroes are said to be capable of distinguishing the track of an European by the *scent* of his footsteps. A grain of musk will perfume a chamber for twenty years, without losing, in a sensible degree, any of its weight. And flowers, "coloured for the sight, perfumed to *please* the smell," are commonly distinguished amid a thousand others, by the odours they emit. These constitute the most striking, as well as the most pleasing, objects of the sense of smell.

Now, in all these instances, we perceive that the cause of the sense, or that which excites it, is a subtle effluvia, or cloud of atoms, parted from the perfuming objects, and carried through the air. And thus, when the

"Lavish stock, which scents the garden round,"

pours upon our senses, redolent of sweets, bright thoughts of innocence and purity, let us not be contented with merely reasoning upon the effect; but let us, wafted on the "breath of nature," reach after the great Cause; the glorious God who designed them for our enjoyment, and who, himself, taketh pleasure in the sweet incense of Israel.

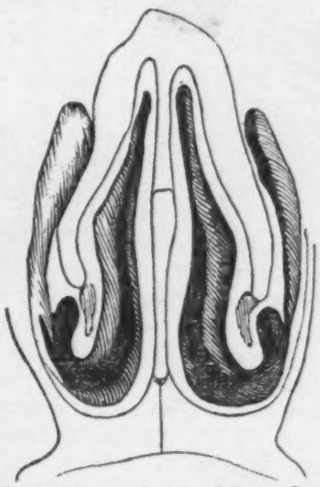


[Front and Lateral Section of Nose.]

1. THE ORGANS OF SMELL.

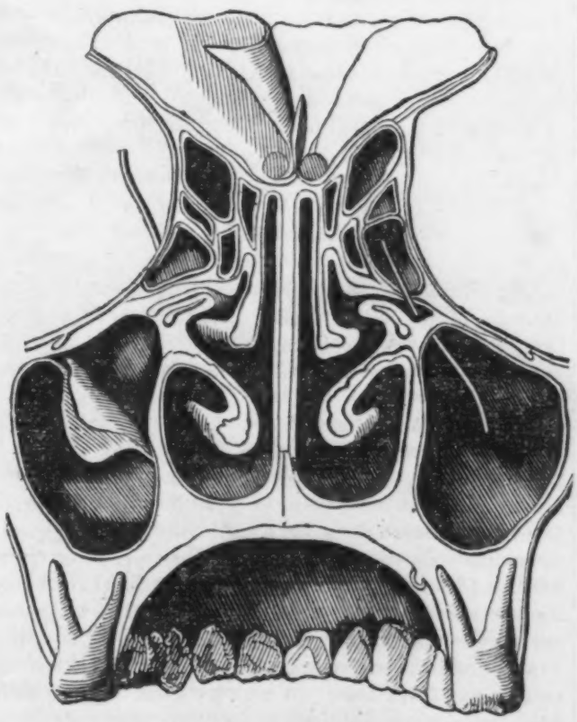
The organs of smell are situated in certain intricate passages and chambers, to which the nose forms the external entrance. The external nose is composed of bone, cartilage, and the common integuments. The bones are two, of an oblong shape, and are situated between the eyes and the cheek bones. They are called the *ossa nasi*, and form a sort of bridge, which, by its solidity, protects the tender structures beneath, and, by its projection, assists very materially in catching the rising odours. Internally, the passage which these bones form, is divided into two, by a thin bony partition, called the *septum narium*. From the bones several cartilages are suspended, to form the flexible end of the nose. Thus we have two openings for the admission of scents, and in the way in which this is accomplished there is much to admire. Had the ossa nasi been continued, and the end of the nose formed of bone instead of cartilage, we could have scarcely lived a month without breaking it; and the comforts of a "pocket-handkerchief" would have remained wholly unknown. We should also have been without the power of regulating the size of the nostrils to the circumstances in which we might be placed; but as it is, we can dilate, or partially close them, according

to the rate we breathe, or the sweetness or not of the odours by which we are surrounded.



[Front View of the Nasal Fossæ.]

The nostrils enlarge as they proceed inward, and lead into many curious cavities and winding passages, formed by what are called the *turbinated* bones, and those of the face and base of the scull. After many convolutions, these passages finally emerge into a larger opening over the top of the throat, and communicate with the mouth. This arrangement enables us to breathe through the nose, which is the most natural mode of performing that function. Breathing through the mouth is almost peculiar to man.



[Nasal Fossæ seen from behind.]

The surfaces of this miniature labyrinth of bones are closely covered by a membrane, called the *membrana schneideriana*, or the mucous or pituitary membrane. This membrane is the immediate seat of the sense of smelling; it is of a thickish spongy structure, very red, and carries in great abundance the filaments of the *olfactory nerve*, whose larger branches enter the inner nose through a number of holes made for them in the ethmoid bone. It is covered with a vast number of minute glands, from which a mucous secretion is constantly and copiously discharged.

3. THE MODE IN WHICH SMELLING IS PERFORMED.

The air, loaded with the effluvia of bodies, is carried by the act of breathing through the nostrils, into the passages of the internal nose, where the odorous particles are entangled, and, adhering to the mucus on the surface of the pituitary membrane, are dissolved, and coming into contact with the nervous tissue, the mind is immediately impressed with the sense of their presence, or, in common language, smells them.

Thus far we may go, but no farther; for how the nerves convey this intelligence, and by what means the brain is enabled to receive it, are secrets, which, as they are known to God only, may justly be expected to humble our pride, and exalt our adoration.

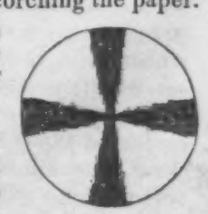
In closing our remarks upon this sense, we may point to the design exhibited in so cautiously placing the organs of smell in the great avenue of breath, as a guard to the lungs; and also in placing the apertures of the nostrils perpendicularly over the mouth, as a protection to the stomach. By these means, bad air and improper food are detected and avoided, and the most important functions of life, eating and breathing, are discharged with a confidence in which suspicion rarely mingles.

LADIES' DEPARTMENT.

AMUSEMENTS AT HOME.

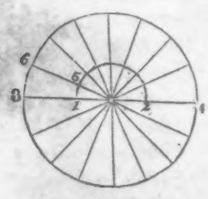
To make Scorched Paper Screens.—THE first thing to be determined on is the form: which may be circular, oval, oblong, square, or in the shape of a leaf, or having any fanciful outline—

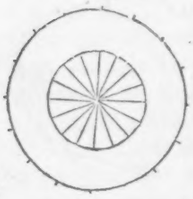
Having decided upon the general form, sketch the outline of it upon a piece of stout drawing paper, and cut it out rather larger than the exact form: then have three or four Italian heaters, or irons for the purpose, made redhot, and placing the paper on a common board, hold one of the heated irons within half an inch over it, until it produces a brown shade, and in the direction of a radius, that is, pointing from the outside of a circle to the centre. It is also desirable to move it gently from right to left, over about the space of an inch, while it is scorching the paper. When the first shade is done, turn the paper round, to make another exactly opposite to it; then half way on each side, and again between every two, until they are so near that the shades meet and produce a teint of brown over the whole. Suppose the screen to



measure nine inches in diameter, then as the circumference is three times the length of the diameter, it will be twenty-seven inches. If the irons are guided over an inch of the paper, the scorching will extend rather more than a quarter of an inch beyond on each side, which will make nearly an inch and three quarters for each shade; and this will require sixteen shades to make up the twenty-seven; if this effect should be larger than is wished, two shades may be introduced between each two after the first eight have been done, making twenty-four.

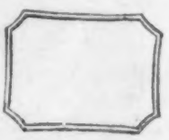
This, however, would be accomplished much more satisfactorily, should you adopt the following method, by which the liability of falling into other errours would be avoided:—Make the circle for the screen with a pair of compasses, of the proper size, with ink; divide the whole number of degrees contained in the circle by the number of shades intended; three hundred and sixty divided by twenty will be eighteen, which is the number of degrees each shade will contain. Place the centre point of the protractor upon the centre of the circle, and draw with a blacklead pencil a straight line for the diameter, as 1, 2; continue it until it meets the circumference as at 3, 4; then mark off eighteen degrees, as at 5, and continue the line until it meets the circumference as at 6; now take the distance 3, 6, in the dividers, and mark off equal spaces until half the circumference is done; then draw lines through each of these points until they meet the circumference on the other half of the circle: now determine the size of the centre paper which is to receive the drawing; about five inches and a half in diameter will be a good proportion, draw it in ink, and then take out the pencil marks between the two circles with India-rubber, and the part of the lines which is left will be sufficient to guide the irons into the proper form. If the shades are not made equal in colour at once, the light ones may be drawn over again to make them equal.





The next thing is to cut out some stout Bristol or card-board rather larger than the screen, and paste the burnt paper upon it, and also the coloured paper for the back. The scorched paper is extremely brittle, and will require much care to prevent its cracking; it will be necessary to damp it all over with a large wet camel-hair pencil, a flat one in tin is best for the purpose; and when nearly dry the paste may be spread freely over it, twice, allowing time for the first coat to be almost dry before the second is applied; immediately after which the paper may be placed on the card-board, pressed well with a cloth, to make it adhere in every part; to preserve it free from spots and marks, let a sheet of writing paper be placed on it while this is done: the embossed paper for the back should be put on at the same time, but will not require to be damped, one coat of paste will be sufficient, and very little pressure need be given to make it adhere. After this has been done, the screen may be placed in a regular press, or on a flat table, and some musick-books laid on to make it dry flat, always remembering that a cloth folded two or three times must be placed next to the embossed paper, to prevent the pattern becoming flattened by the pressure requisite to make the screen dry straight. It is to be left in press about three or four hours, and in the meantime, the gold and coloured paper ornaments intended for it may be prepared. A screen of an oblong square form has generally a gold ornament at each of the four corners; one of a circular form will look better, with a wreath of gold and coloured leaves and flowers intermixed, carried all round it; other forms may be ornamented according to fancy. To cut out the gold ornaments for an oblong square screen—with the black tracing paper mark the form of one corner on the back of a piece of gold paper of the proper size, and fasten it and three others of the same size under it, to a piece of stout card board with three or four drawing-pins, carefully observing that two of the pieces of gold paper must be placed with the white side upwards, and the other two are to have the gold side upwards. They may then be cut out with a sharp-pointed penknife, and four others cut in the same manner, if you intend to make a pair of screens at once. Then prepare any flowers of coloured paper precisely in the same manner.

Eight pieces together would be so thick that you would have more trouble than in cutting them in two lots; and the only objection to doubling one piece of paper, instead of taking separate pieces is, that it would use much more, and cause a waste of the gold which is an expensive article. The outline of the whole screen and of those parts which are to represent open-work, may now be traced on a piece of thin card-board, and cut out with some small openings to make the form of the centre, and also two pieces of thin Bristol board for the centre, which are to be bound round the edge with either the matt or the burnished gold. The former is the term given to the unglazed gold paper, the latter is the bright shining gold. To put the gold properly on the edge of the Bristol board requires great nicety and care. It is cut into narrow strips with a sharp-pointed penknife, and a long flat ruler, which will be best for the purpose if it have a brass edge, and if the gold paper be placed between two sheets of writing paper, it will be cut very clear. When the burnished gold is used, let it be put on with gum, but the matt gold, with paste, because paste will remove part of the gloss from the former, and gum will give a gloss to the latter: in either case the cement must be applied twice, letting the first coat be nearly dry before the second is put on. It must be pressed upon the Bristol board with a clean cloth, and neither the gum nor paste must be suffered to get upon the Bristol board beyond where the gold extends; it will be found a good plan to place the gold paper upon the



edge of the Bristol board, and observe whether it projects equally beyond, before it is pressed down to the front and back, as it will have an awkward effect if it appear irregular and wider in one part than another.

The pattern which surrounds the centre may be either a varied one all round, or about a fourth part repeated. In the former case, the whole must be traced, in about four parts, on gold paper; in the latter, if one part be traced, the four may be cut out altogether; if the pattern is designed to run in one continued direction, the four pieces of gold paper for it, must be placed in the same position, with the gold all facing in one direction; but if the design is intended to be a repetition of the pattern in different directions, then the papers must be placed two with the gold side up, and the other two with it down; and the same rule is to be observed in reference to the card-board pattern, for cutting out the form of the whole screen.

When the screen has been in press about the time before recommended, three or four hours, the exact form may be marked by placing the card-board pattern on it, and drawing a pencil-line all round the outline, and each part is to be cut out. This cutting out you will very soon ascertain is rather a fatiguing task. It is done with small chisels and gouges, which should be as sharp as possible. Placing the screen on a piece of stout card or a plate of pewter, laid upon a very firm table, put the chisel upon the line, keep it in an upright position, and press heavily enough to cut through the card. Move it close to the edge of the first mark and cut again, and so on until all the outline has been cut: if the forms are so curved as to require it, the gouges may be used.

The card-board centre and gold flowers, &c., may now be pasted on; the flowers, which are to have two coats of paste, may first be put on, and the Bristol-board, which is to be pasted but once, may be put on last, because it will be desirable to put it in press again as soon as the latter has been put on, to secure its adhering. The screen must now be left in press three or four days, after which I will tell you how to shade the gold and coloured paper flowers.

If the screens should be left in the press until the next day only, it would occasion much more labour, in consequence of their being considerably harder; but if cut out as soon as the paste has set sufficiently to secure them from the risk of being separated, and while the card-board and paper are still damp, it is comparatively easy.

In regard to whether it is better to direct the lines of shade, produced by scorching the paper of the oblong square forms, all towards one point, as in shading a circular screen, or to direct them towards two points like the two centres of an oval, we should say that it will be sufficient to direct them to one point, as in the round screen, unless you have to shade an oval form, which may be considerably wide in proportion to its height, in which case I should shade from

several points, taking one for each line of shade until they come as near to the side as to the top of the form; observing that every two are nearer together in the middle than towards the edge of the figure, and so avoiding the bad effect of parallel shades, as those in the middle must be if two points only are taken, in which case they no longer have the effect of rays proceeding from an illuminated centre, and therefore give a different idea to the one intended.

We will now state the mode of shading the ornaments on the screen. The coloured paper is shaded with water-colours in cakes, and will generally require about three degrees of teint, a light shade, a darker one, and a very strong one for markings. The light touches, which enliven it so much, are put in with flake white used rather thickly, and mixed up with thin gum-water: all which may be begun and finished at the same time. Not so the shading of the gold. From the difficulty with which water-colours adhere to gold paper, and the extremely heavy effect they produce when used, it is necessary to shade upon it with either oil or varnish colours, and the latter of these is preferred because it dries more quickly.

You require some burnt sienna, lake and lampblack, in powder; a bottle of copal varnish, and spirits of turpentine, a palette, knife, and slab, some sable hair-brushes of middling size, and one small one with longer hair. Put as much burnt sienna as will lie upon a sixpence, and a fourth as much lake, then add varnish enough to moisten them, and a few drops of turpentine; grind them thoroughly upon the palette with the knife, adding turpentine as the mixture becomes dry, and when it is perfectly smooth, a little more varnish; it may then be put into the slab, and an equal quantity of varnish and turpentine be added to render it as thin as required for use, for the large shades; and any harsh outlines may be softened off with a brush just moistened in varnish alone. In two or three hours this will be sufficiently dry to receive the second and darker shade, which may be softened off in the same manner. It must then be put away to dry until the following day, when the markings may be done with a darker brown colour, made by adding a very little lampblack to the lake and burnt sienna, and also a greater proportion of varnish than before; this must all be fresh mixed, as what is used one day will not be fit for the next. In putting on these markings, use the small long hair-brush, and endeavour to get the long thin line, when required, by moving the hand altogether while it is drawn, instead of keeping the little finger fixed on the paper while the others are guiding the brush. Having finished these, let it be put away until the following day, when a coat of the varnish may be spread over the gold wherever it has received a shade. The dark brown colour may be used for the dark teint put on the burnt paper by the side of the gold, to give it greater relief.

THE sum of behaviour is, to retain a man's own dignity, without intruding upon the liberty of others.

OF THE FUNCTIONS OF THE BODY AS AFFECTED BY EXERCISE.

The movements of the body are of two kinds. The first take place without consciousness or any act of the will. They consist of the exercise of the vital functions for the preservation and support of life; as of the stomach, intestines, heart, &c., and also of the exercise of all the muscles when they act involuntarily. The second are the movements performed consciously and voluntarily, when we put in action any muscle for a particular purpose. These last constitute exercise. By exercise, the power of the muscular fibres is increased. When a limb is moved, the muscles which are put in action swell by the more frequent and copious flow of blood into them, and heat is developed. If the motion be long continued, the limb grows stiff; a sensation of lassitude is felt: and a difficulty of further contraction is the result. If the motion were violent, and the blood were called in excess into the limb, inflammation might arise. If, on the contrary, after intervals of repose we perform the same motions for many times in succession, we observe an increase of bulk and energy in the part, in consequence of the more active conversion of nutritious matter into its substance. and also a perfection of action which was not previously enjoyed. Hence, in labouring men, the limbs employed in their occupation are larger in proportion than the rest: this is the case with the arms of blacksmiths, bakers, &c. This increase of size has nothing to do with fatness: on the contrary, exercise tends to make the body lean. Labouring men, hunters, and soldiers are not fat; but their flesh is firm and strong, because their habit of exercise has conferred these qualities on their muscles.

This effect is still more evident amongst animals. Those cooped up where they cannot sufficiently employ their muscles, have the flesh delicate, tender, white and fat: the flesh of wild fowls, on the contrary, is firm, hard, dark coloured, and lean—proofs of strength and vigour.

Generally speaking, the effect of active exercises on any part or any animal, is greater the more it is in motion. The person, however, who is constantly employed in muscular exercises never acquires great strength. If continued exercises are also violent, what is gained does not make up for what is lost, and he wastes quickly. If, on the contrary, exercise and repose are alternate, it favours nutrition and the development of muscular power. The person, then, who acquires the greatest strength is he who practises muscular exercises which require great force, but who follows them up by sufficient intervals of repose.

To have an idea of the extensive effects of exercise on the rest of the organization, it is enough to observe that the locomotive muscles and their levers, the bones, form a mass much larger and heavier than all the organs, and that their actions also are by far the largest and most powerful. It is thence evident how vast must be the influence of the repeated and continued actions of such organs on the rest of the economy.

When the body is in a state of repose, the interiour functions are, indeed, in exercise; but, as the organs which execute them do not receive any impulse or excitement from without, their action is slow and feeble. Not only the muscles themselves lose their suppleness and energy; the whole organization is enfeebled; and, if the state of repose continue, the strongest man will ultimately become weak and indisposed. On the contrary, under the influence of exercise, the interiour functions increase in activity and power.

It has been observed that the cerebel or little brain, by means of the nerves acting upon the muscles, excites them to produce motion: it may now be added that the heart gives to the muscles a similar excitement, or rather the means of acting, by pouring into them the blood; because, if we were to intercept the blood which is sent to them by that organ, they would soon be unable to contract, and their active power would finally cease.

Thus the nervous system and the system of the bloodvessels are evidently the two principal causes which determine the muscular contractions.

As, however, every thing in the economy of animal life, is united and dependant, the muscles cannot be put in action or be exercised without reacting on the brain by means of other nerves, and on the heart by means of the returning vessels or veins. Thus the heart and brain, being again more stimulated, return an additional stimulus to the muscles themselves, and to all the organs.

In this way, the contractions of the muscles produce a general excitement, making all the organs partake of their activity. It is thus that every one must have observed, after active exercise, those effects, the very causes of which we are now explaining, namely, palpitation of the heart, quick pulse, heat, redness of the skin, perspiration, &c.

If we now wish, for example's sake, to apply these simple physiological principles to explain the influence of exercise upon digestion, we can understand how the organs whose duty it is to perform this vital function, increase, by exercise, in strength and power. If the stomach be empty, exercise accordingly creates or increases the appetite, and ensures a more speedy, easy, and perfect digestion.—It must, however, be observed that violent and too long-continued exercise exhausts the common energy of all the organs, and consequently troubles and disorders the movements of the stomach, and thus injures the digestion. As to the circulation, it has already been seen that exercise accelerates the palpitations of the heart and the action of the bloodvessels. The same thing occurs with respiration, which becomes quick in proportion to the force and activity of our external motions. It is, however, in its effect upon the nourishment and material composition of the body, that it is most interesting, in relation to the present views, to notice the consequence of exercise. It is especially in contributing to this function that exercise spreads equally over the body, heat and vital energy, and maintains an equilibrium among all the functions. Even the sensations receive from action new excitement. We know that, after long repose, the intellect becomes dull, and that by the effect of exercise, not so great as to fatigue, perceptions of some kinds arise more freely, and the intellectual faculties are reanimated.

Sleep, on the contrary, placing the brain in an inactive state, it follows that its too frequent repetition, and especially its excessive prolongation, must enervate that organ. Thus, too much sleep debilitates the brain.

It appears, however, that muscular exercises leave those particular organs of the brain which have reference to moral qualities and intellectual faculties in a state of repose. The action of the brain during exercise seems limited to those of its organs which direct the movements.

If exercise be indulged in too much, but not so constantly, it makes individuals appear prematurely old.

This last is an important consideration for ladies. The errour they commit, however, is not likely to be of this, but the opposite kind, which is more surely and immediately fatal to health and beauty.

OF THE CONSTRAINT TO WHICH THE BODY IS WRONGLY SUBJECTED.

The excessive or too long-continued action of locomotive organs, is not so unfrequently injurious to them in women, as is the state of inactivity, arising from constraint, by which their structure is often wasted and their capability of action lost.

The state of deficiency in the consolidation of the bodies of the vertebræ results, in many instances, from the present enfeebling system of conducting female education, and stays, adding constraint to enfeeblement, prove doubly injurious if used before the body has acquired its full growth, because, at that period especially, the body is capable of being moulded into any shape the fashion of the time may consider most becoming.

There is no compression of muscles that do not "interfere with their power of contraction, or that is not injurious exactly in proportion to its degree; and the more muscles are called into action, the more injurious must such compression always be!—This mistake arises from the utility, real or supposed, of belts around the loins; but such utility, if it exists, depends on their supporting the internal abdominal organs, not on their compression of muscles."

To the constraint of dress, is added the absence, I may almost say the impossibility, of exercise.

The only exercises indeed to which, in their hours of relaxation, young ladies have access, are in general only a few insignificant games, or amusements extremely limited, from the nature of the space afforded for the purpose of exercise. Even these are usually prohibited as soon as the pupils enter into them with ardour, and perhaps properly so; for exercise indulged in without any regulation might produce real inconveniences, which a system composed of select exercises, suited to the age and strength of the pupil, does not produce.

OF THE DEBILITY WHICH IS CAUSED BY CONSTRAINT.

It has been already said that continued repose of a member decreases nutrition in it, and subjects it to waste: the irritability caused by movement not taking place, the flow of the blood which it caused ceases also.

To decrease of nutrition, appears to be added a weakening of the function from want of use: the member having been for some time in a state of repose, has no longer a similar power.

The proofs of this are innumerable; being afforded by all the acts of our lives in which habit is more or less irregular. We feel that they are less perfectly repeated after intervals of cessation.

If this repose endure for a long time, movement of the limb becomes almost impossible.

It would appear also that, with the enfeebling of the muscles and the diminution of the calibre of their vessels, occurs also a defect in the exhalation of the membranes of the joints or articulations.

When to this is added that pressure which produces absorption and waste of the supporting muscles, the organick injury is at its height—the means of adequate support are gone. A medical friend mentioned to me an instance, which he himself witnessed, of several of the muscles of the neck being partially divided by the long-continued use of a tight necklace.

Hence persons, who have long been accustomed to the support of tight stays, find it almost impossible to lay them aside, because their sudden discontinuance induces the most distressing feeling of the weakness which constraint has produced.

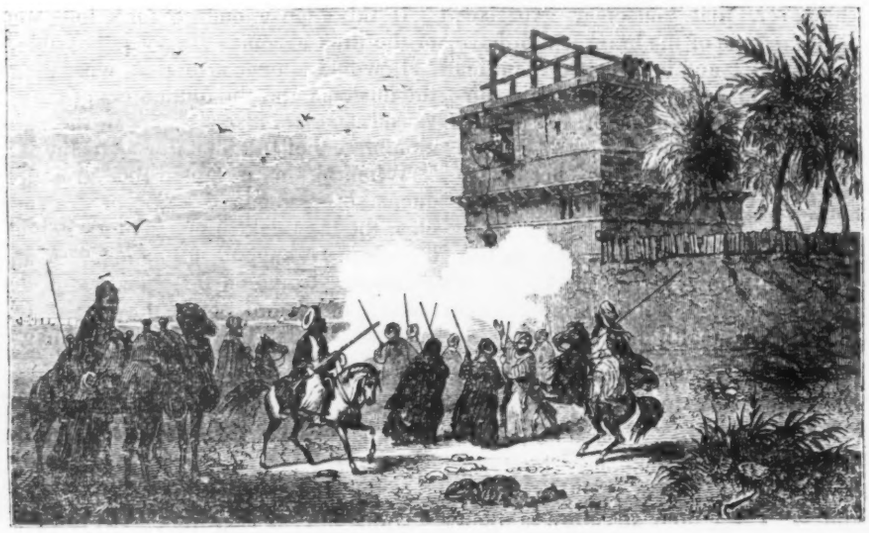
Unhappily, the means almost always employed to compensate for this persevering destruction of natural power, is increased use of its causes.

The final consequence of this is stated by Portal, who says, "Persons adopting such means, are sure to become distorted whenever the artificial props are removed."

ARABIA.

The best treatise upon Arabia extant, is that by Andrew Crichton, from which the view, on page 76, of the Convent of El Bourg near Tor, and the other illustrations accompanying this article are taken. Crichton's treatise on Arabia forms the sixty-eighth and sixty-ninth numbers of Harper's Family Library, and should be in the hands of all who wish to know the present state of that interesting country. Speaking of Mocha, he remarks, that "viewed from a distance, the town looks handsome and cheerful, the houses seem lofty, and have a square solid appearance. Their unvaried whiteness contrasts beautifully with the dark-blue sea, and, no shrub or tree intervening to break the uniformity of colour, gives it the semblance of being excavated from a quarry of marble. Over the tabular line of flat roofs, the

[Mocha.]



[Convent of El Bourg near Tor.]

minarets of three mosques rise to a considerable height, with several circular domes of *kubbets* or chapels. The roadstead is almost open, being only protected by two narrow tongues of land on one of which is a ruined castle, and on the other an insignificant fort. A grove of date-trees adjoins the city, and extends nearly two miles along the southern beach; a pleasing object for the eye to repose upon, contrasted with the interminable expanse in every other direction of brown and desolate sterility. The wall, by which it is completely surrounded, is not more than sixteen feet high towards the sea; though, on the land side, it may in some places be double that height.

"The streets of Mocha present a motley appearance, both as to the dress and character of the inhabitants. Under the coarse awnings of its narrow bazars are to be seen brown and black complexions, half-naked peasants, and richly-attired merchants, in robes of woollen cloth, with a red woollen cap and a tassel of purple silk, peering above the folds of their snow-white turban. There is the Jew, the Banian, the Persian, the Egyptian, and the jetty Abyssinian, straight as the young areca, and having his short curled hair died with a reddish yellow—the foppery of his country. There is the stout Arab porter, in his coarse brown garment, bowing under a heavy load of dates, the matting all oozing and clammy with the luscious burden. Lastly, there is the Bedouin, with the hue of the desert on his cheek, the sinewy limb, the eye dark and fiery, his legs and arms bare, sandals on his feet, and his bronzed bosom open to the sun and wind. He walks erect, and moves onward giving place to none;—a broad, straight, two-edged sword in his hand, and a long poniard in his girdle."

There too may be seen the girl of the Coffee mountains in her native costume as showed in the cut, and the Arab of rank, with his shirt falling over wide drawers of cotton cloth and his vest with straight sleeves covered by a flowing gown. His turban is large and falls down between his shoulders and his crooked cutlass or dagger is inserted in a broad girdle to the handle of which is attached his chaplet or rosary which every true Mohammedan uses at prayers.

[Native of the Coffee Mountains.]

[Arab of Rank.]

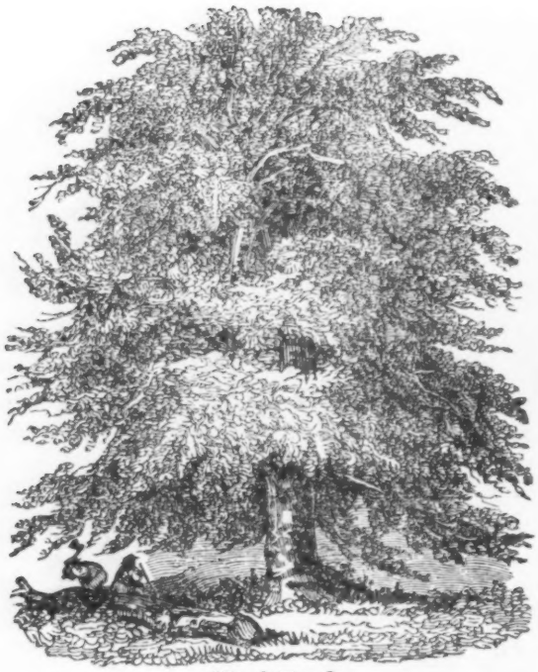
[Mount Ararat.]

ILLUSTRATION OF SCRIPTURE.

"*And the ark rested upon the mountains of Ararat.*" Gen. viii. 4. This celebrated mountain, one of the ridges on which Noah's ark rested in the seventh month, on the seventeenth day of the month, is situated in greater Armenia, and lies according to the best calculations in 39° 30′ north latitude, and 40° 30′ east longitude. By the Persians in the neighbourhood, it is called "the mountain of Noah:" and Turks, Armenians, and Persians all unite in representing it as the haven of the great ship, which preserved the second father of mankind from the waters of the deluge. It is a very grand object being not merely a high summit in a chain of elevated mountains, but standing as it were apart and alone—the miner mountains which seem to branch out from it and decline away in the distance being so perfectly insignificant in comparison, that the sublime effect of this most magnificent mountain is not at all impaired, or its portions hidden by them. The great mountain consists of two peaks, called the great and little Ararat, and is twelve leagues distant from Erivan. The two heads form distinct cones separated by a wide chasm or glen, which renders the distance between the peaks, twelve thousand yards. The eternal snows upon its summits, occasionally form avalanches which precipitate themselves down its sides with a sound not unlike that of an earthquake. Various efforts have been made at different times by adventurous travellers, to scale these inaccessible mountain pyramids: all, however, were frustrated except those of Professor Parrot, who, after various fruitless attempts, at length succeeded in 1830 in overcoming every obstacle; and ascertained the positive elevation of the largest peaks to be sixteen thousand two hundred feet; it is therefore, more than fifteen hundred feet loftier than Mount Blanc. He describes the summit as being a circular plain about one hundred and sixty feet in circumference, united by a gentle descent with a second and less elevated peak lying towards the east. The whole of the upper regions of the mountain from the height of twelve thousand seven hundred and fifty feet is covered with perpetual snow and ice. Professor Parrot afterward ascended the little Ararat which he reports to be about thirteen thousand one hundred feet high. The Armenians, who have many religious establishments in its vicinity, regard the mountain with intense veneration.

AMERICAN TREES.

The beech tree, of which we have given a cut, is one of the most majestick in our forests; our woods present two varieties of it called the *white* and the *red*, from the colour of the wood. In the Middle, Southern, and Western states, the red-beech does not exist, or is very rare; it is found most abundantly in the Eastern states. The white-beech flourishes best in a deep moist soil and cool atmosphere, and hence it thrives in the Middle and Western states. On the banks of the Ohio, it is sometimes found measuring nine, ten or eleven feet in circumference, and more than one hundred feet in height. The leaves are oval-shaped, very smooth, of a gloomy brilliant green, and are bordered in the spring, with a soft hairy down. The fruit is an erect capsule, covered with loose flexible spines; when ripe this capsule divides into four parts, giving liberty to two triangular seeds, the meat of which is extremely sweet and pleasant and affords nourishment to the clouds of wild-pigeons, which at times darken the western forests.



[Beech Tree.]

In those places where oak is scarce, the bark of the beech is sometimes used in preparing leather.

In France and Germany an oil is extracted from the beech-nuts, which is next in fineness to that of the olive. For this purpose the fruit is gathered as soon as it is ripe, as it is liable to be injured by the rain. It is swept together upon the ground, or is gathered by spreading sheets under the trees, and beating them. It is then cleaned with fans or in mills, and is spread like corn, in a garret to dry gradually.

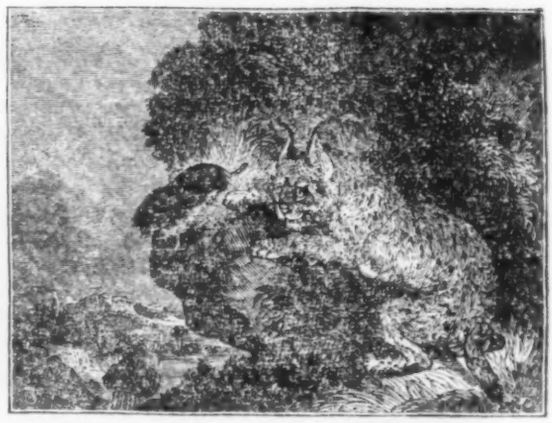
The oil is abundant only when the fruit is perfectly ripe. The season for extracting it is from the beginning of December to the end of March; if the operation is delayed longer, the nuts are liable to be injured by the warmth of the season.

The skin is commonly ground with the kernel, but as the produce in this way is diminished a seventh, it is better to separate them; the kernel should be immediately reduced to a paste: as the paste becomes dry in the process, water is added in the proportion of one pint to fifteen pounds of fruit to prevent its being impaired by the heat. The paste is sufficiently reduced when the oil is discharged by the pressure of the hand. It is then put into sacks of coarse linen or woollen and pressed. Three hours are generally necessary for this part of the process.

If the process be performed skilfully, the oil obtained is equal to one sixth of the fruit. Its quality depends on the care with which it is preserved. It should be drained off twice during the first three months without disturbing the dregs, and a third time at the end of six months: it arrives at perfection only when it becomes limpid, several months after its extraction. It improves by age and may be preserved longer than any other oil.

Beware of sudden changes in any great point of diet; and if necessary enforce it, fit the rest to it; for it is a secret both in nature and state, that it is safer to change many things than one.—*Bacon.*

FABLES.



THE LYNX AND THE MOLE.

nce by chance a Lynx, in his rambles, met with a Mole. The Lynx, pleased with the various beauties of nature as seen by his penetrating eye, solicited the Mole to participate with him in viewing the delightful prospect from a rising ground.

The Mole, who had just left his hole in the earth, consented to accompany him. When they came in sight of the distant country, "See," said the Lynx, "how charming is the view before us! behold the bright sun, that seems to give life every where, and makes all things rejoice."—"Well, well," said the Mole, "I do not know what you may see; but, for my part, there seems only a heavy mist before me."

"Now," said the Lynx, "I clearly perceive the difference there is between us: your dull senses perceive little or nothing, while I receive both information and delight. You are no fit companion for one who by alchymy of mind can generate jewels, and whose keen eye can pierce objects the most opaque. Go you back again to your dark abode in the earth, while I shall range the forest; for to such as have the power of perception, the treasures of nature are every where teeming with knowledge and with pleasure."

APPLICATION.

This fable seems to carry its moral in itself: so that little more remains to be said upon it. Certain it is, that if the very same thing be shown to two persons of different degrees of intellect, or of different dispositions, their perceptions of it will as widely differ from each other as if they had seen two different things: one views it with apathy, and without interest; the other sees it with delight, still heightened by a lively imagination, which brings a thousand associated pleasures in its train; and thus while to the one it seems as if deprived even of its own beauties, to the other, it is decked out in borrowed splendour. From this cause proceeds that vast difference of opinions which we often hear given by different persons concerning the same object. The dull perceive but half of what is shown them, while the genius sees all its excellences refined and magnified.

USEFUL KNOWLEDGE.

To prevent Iron and Steel from Rusting.—Heat the steel or iron till it burns the hand, and then rub it with a piece of pure white wax, and polish it with a piece of cloth or leather till it shines well. This simple operation fills the pores of the metal and defends it completely from rust, even though it should be exposed to moisture.

To make Red Sealing-wax.—Take an equal weight of gum lac, vermilion, and pure Venice turpentine, melt them with a gentle heat, and stir them well together. It may be cast into sticks, by pouring this fluid into moulds made of flour of plaster, or of copper.

Lamp-glasses.—To prevent lamp-glasses from cracking by a sudden expansion of heat, run the point of a diamond along the base of the tube. This operation will be best performed by a glazier.

East Indian mode of making Ice.—Large pits, about three feet square, and two feet deep, are dug, and their bottoms are covered from eight inches to a foot thick with sugar-cane or the dried stems of Indian corn. A number of small, shallow, unglazed earthen pans formed of very porous earth, are placed on this bed in rows; these pans are about a quarter of an inch thick, and about an inch and a quarter deep, and they are filled at evening with soft water which has previously been boiled. In the morning, before sunrise, the ice-makers attend at the pits and collect the ice which is formed in baskets, and convey it to its place of preservation. This is prepared in some high and dry situation, by sinking a pit, nearly fifteen feet deep, which is lined with straw first, and afterward, with a second lining of coarse blanketing. The ice is deposited here, and it is beaten down with hammers, till at length its own accumulated and accumulating cold, again freezes the whole mass into a solid cake. The mouth of the store-pit is well secured from the influence of exteriour air with straw and blankets, and lastly, a thatched roof is placed over the whole.

Transplanting Shrubs in Full Growth.—Dig a narrow trench round the plant, leaving its roots in the middle, in an isolated ball of earth. Fill the trench with powdered plaster of Paris, which will harden in a few minutes, and form a case to the ball and plant, which may be lifted and removed at pleasure.

Transplanting Young Trees.—In transplanting young trees, the more they are lopped, the more certainty there is of their living; nursery-men, who usually supply them, and warrant their taking root, amputate without scruple the head and branches.

To preserve Potatoes in a dried state.—Wash them, cut them in pieces, steep them forty-eight hours in fresh water, and dry them in an oven. One hundred parts of fresh potatoes, will give thirty so prepared and dried. In this state they may be kept for years, or ground into flour, which mixed with one third rye will make excellent bread.

To preserve Hams.—Take clean strong lie, made of wood ashes, and boil it down to make the solution stronger than it generally runs off. Then dip the hams into it so that they may be completely wet, and then hang them to dry.

To make Currant and Gooseberry Wine.—For currant, dissolve eight pounds of honey in fifteen gallons of boiling water, to which when clarified add the juice of eight pounds of red or white currants. Then ferment it for twenty-four hours and add two two pounds of sugar to every gallon of water. The preparation is afterward clarified with the white of eggs. For gooseberry wine, the fruit is gathered when about half ripe and then pounded in a mortar. The juice is then strained through a bag and mixed with sugar in proportion of three pounds to every two gallons of juice. It is then left quiet for fifteen days, at the expiration of which time it is carefully poured off, and left to ferment for three months when the quantity is under fifteen gallons, and for five months when double that quantity. It is then bottled off, and is soon fit for use.

Excellent Soft Soap.—Sixteen quarts of lie of sufficient strength to float an egg, eight pounds of clean grease, one and a half pounds of rosin; put the whole into a five-pail kettle and boil it. At first, it is apt to rise, in which case, add a little strong lie, and so continue to do until the materials are incorporated. Then remove it from the fire and add by degrees weak lie, stirring it at every addition, till the kettle be full.

Preserving Vegetables green for Winter.—Take green corn either in the ears or carefully shelled, peas, beans in pods and dip them into boiling water and then carefully dry them in a room where there is a free circulation of air. Thus preserved they will keep until winter and retain all their freshness and agreeable flavour.

To Silver Iron.—Add to a solution of silver in nitrick acid, a portion of common salt. Wash the precipitate thoroughly on a filter, and let it dry. By rubbing this powder on the iron or steel, previously coppered, by plunging it, with a clean surface, into a warm solution of sulphate of copper, and rubbing it with a polisher, with a little cream of tartar, a coating of silver may be established, which admits of a fine polish.

Maize Sugar.—Mr. Pallas has after repeated experiments succeeded in procuring a crystallized sugar from the stalks of Indian corn, which bears a strong analogy to that extracted from beet root.

Paper to resist Humidity.—Dip unsized paper once or twice into a clean solution of mastick in oil of turpentine, and dry it by a gentle heat. The paper does not become transparent, and has all the properties of writing paper; and when preserved for years, it is free from injury by humidity, insects, or mice. If dipped into a solution of caoutchouck, the effect will be still better.

LITERARY NOTICES.

The Boy's and Girl's Library of Useful and Entertaining Knowledge. In their prospectus, the brothers Harper assign as the principal reason for the publication of the Boy's and Girl's library, the wish to create a channel through which the products of the many able pens enlisted in the service of the young, may be advantageously conveyed to the publick. They remark, "the contemplated course of publications will more especially embrace such works as are adapted, not to the extremes of early childhood or of advanced youth, but to that intermediate space which lies between childhood and the opening of maturity, when the trifles of the nursery and the simple lessons of the school-room have ceased to exercise their beneficial influence, but before the taste for a higher order of mental pleasures has established a fixed ascendency in their stead. In the selection of works intended for the rising generation in this plastick period of their existence, when the elements of future character are receiving their moulding impress, the publishers pledge themselves that the utmost care and scrupulosity shall be exercised. They are fixed in their determination that nothing of a questionable tendency on the score of sentiment shall find admission into pages consecrated to the holy purpose of instructing the thoughts, regulating the passions, and settling the principles of the young."

The numbers now before us form the twenty-sixth and twenty-seventh volumes of the series, and are devoted to the whale-fishery, the important details in regard to which, are presented by Uncle Philip, in as clear and perspicuous a manner as that adopted by Peter Parley, and of the two, we prefer *Uncle Philip.*

To meet the expectations of the admirers of Bulwer, the brothers Harper have been prevailed upon to issue an uniform series of his works; each novel is comprised in one volume, with an engraved vignette and picture. They have already published in this uniform series, the celebrated novels of Pelham, the Disowned, the last days of Pompeii, and Rienzi; the designs of the last named are very fine, and are from pictures by Chapman. The sixth and seventh volumes now before us embrace the affecting tale of Eugene Aram, and Devereux, which is admitted by all to be an admirable picture of men and manners. The typographical execution of these volumes is remarkably neat, and the enterprise cannot be profitable unless these works are extensively circulated.

Philip's Ladies Closet Library.—This series of works so well known, and so extremely popular abroad, are now in course of publication in this country, by D. Appleton & Co., 200 Broadway, N. Y. "The Marys," and "the Marthas," have been sometime before the publick. The style in which they are "got up" is equal to any of the Annuals.

The History of Texas; or, the Emigrant's, Farmer's and Politician's Guide, &c., &c. By David B. Edward, Preceptor of Gonzales Seminary, TEXAS. Cincinnati, J, A. James & Co.; New York, Howe & Bates. This is the title of an exceedingly interesting work, and the best we should think that has been published on Texas. The emigrant can here find all the information he may require as to the geography, climate, political history, &c., &c., of this fertile country.

Tales of the Wood and Fields. Complete in one volume. Retail price, fifty cents: Harper and Brothers. Another interesting work by the author of "*Two Old men's tales,*" which were received with great favour. The story of Louisa Mildmay fully sustains the author's well-merited reputation. The price of the book is extremely low, and puts it within the reach of every one.

The Influence of Mental Cultivation upon Health, by Dr. A. Brigham, of Hartford, which has been much commended in this country, has been reprinted in England; where it is edited by the celebrated Dr. Macnish.

Four Years in Great Britain, by Calvin Colton, new and improved edition, Harper and Brothers. A large edition of this popular and interesting narrative having been exhausted, the second edition is now submitted in a more economical form, with corrections of discovered faults, and some additions. It is now better adapted than before for a wide circulation, and the price of it is much reduced.

Mr Colton's "*Thoughts on the religious state of the Country, with reasons for preferring Episcopacy,*" a neat duodecimo of two hundred pages, has also been published by the Messrs. Harper. Of course it is a work of a controversial character, but is much read even by those whose sentiments differ entirely from the opinions advanced by Mr. Colton.

The fifth and sixth numbers of the Christian Library contain a portion of *Travels on the Continent of Europe through parts of the Netherlands, Switzerlands, Northern Italy, and France*, by Daniel Wilson, Bishop of Calcutta. These travels will be embraced in about four numbers of the Christian Library, price twenty-five cents!

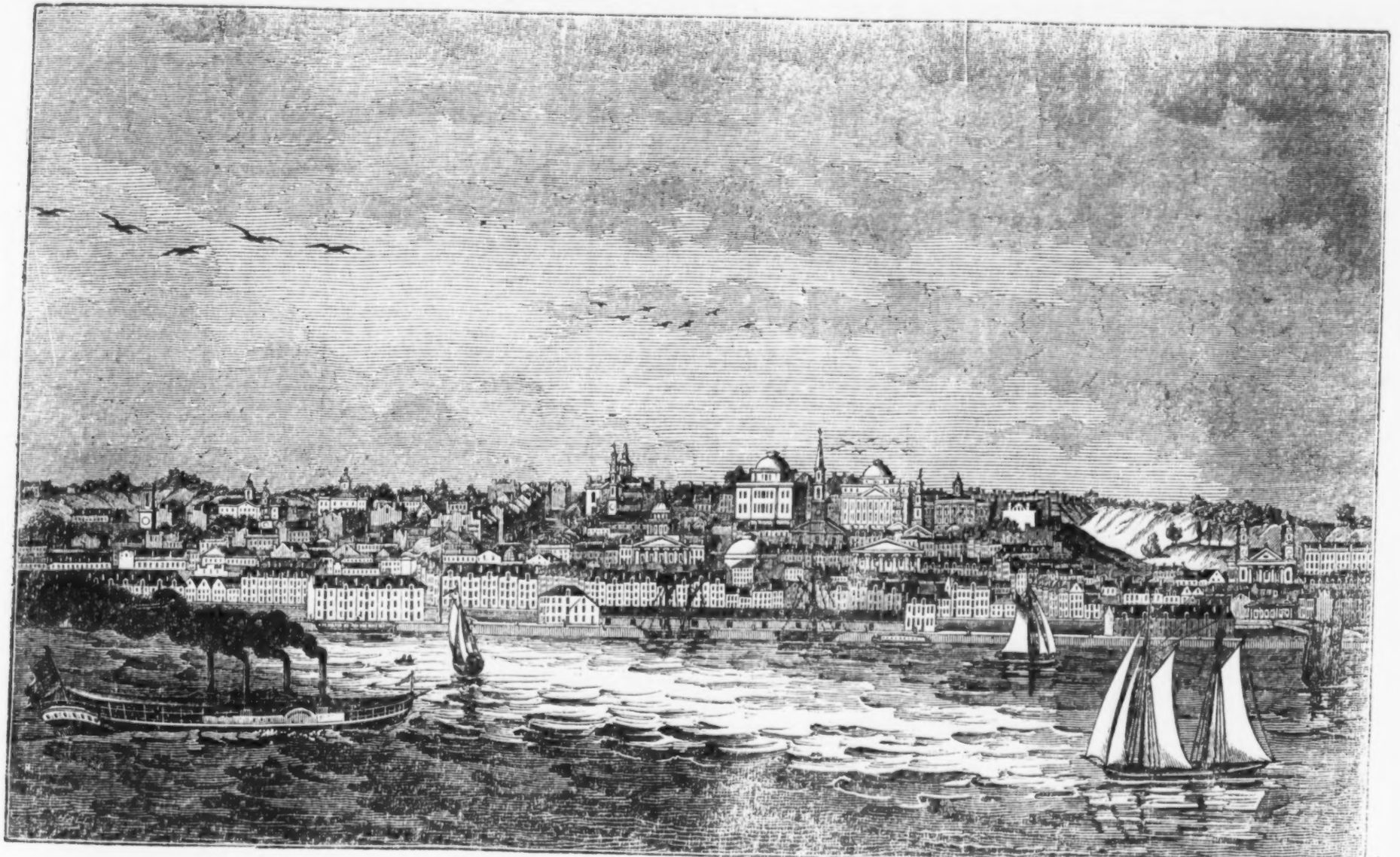
The Doctor, &c. Harper & Brothers. One of Harpers' fifty cent series of popular books, reprinted from the English editions. A most singular and amusing production, exhibiting great talent and learning, a powerful imagination and extensive reading, differing in its construction, and the mode in which it is put together, from every book that ever has been or ever will be published, and yet the whole is extremely entertaining, while it is at the same time a truly philosophical performance. Its author is unknown, and he remarks in his *Postscript*, which here takes the place of a preface (although the book contains an antepreface, preface, and initial chapter,) that he intends to remain so. Had the book been published originally in this country we should ascribe it without hesitation, to Professor J. W. Francis of New York.

The June number of the Knickerbocker, contains its usual assortment of choice morsels for every palate. We are much pleased with the quiet humour of the Odds and Ends, from the Portfolio of a penny-a-liner; and by the classical scholar, the letters from Piso to Curtius will be extremely grateful. The Knickerbocker prospers, and is still published by Messrs. Clark and Edson.

Frank, by Maria Edgeworth—Harper and Brothers. The juvenile works of Maria Edgeworth are to be comprised in five volumes with illustrations, uniform with her novels and tales. Her juvenile books are allowed by all, to be admirably adapted for the instruction and amusement of the young.

Harpers' Family Library, No. 78. The earth, its physical condition, and most remarkable phenomena, by W. M. Higgins. A popular treatise upon the philosophy of the earth: treating of its form, dimensions, and revolution, the formation of land and water, the interiour of the earth, the views taken of its structure by different geologists, &c. &c.; the whole illustrated by numerous engravings on wood. We are glad to see books of this character introduced into the Family Library. They contribute much to the advancement of science.

The Student, a series of papers, by the author of Eugene Aram. This book forms the eighth volume of Harpers' uniform edition of Bulwer's works. The Student consists of papers published originally in the New Monthly Magazine, where they attracted much favourable attention. They belong rather to the poetical than the logical philosophy, addressing the sentiment rather than the intellect. Like every thing from the pen of Bulwer, the book has been, and will be extensively read. The engravings in the Student are very fine.



VIEW OF ALBANY—FROM GREENBUSH.

ALBANY.

HISTORICAL REMINISCENCES.

ALBANY, was thus named, in the year 1654, in honour of James, Duke of York and Albany, who afterward ascended the throne of England, as James II. Its original Indian name was *Scho-negh-ta-da*, signifying "*the end of the pine woods*;" and this name, for the same reason, was applied by the aborigines to the site of the city of Schenectady, where it is yet retained with a slight variation in the orthography. The Dutch named Albany, "Beaverwyck," and afterward "Willemstadt." It was never known as Fort Orange or Urania, as has been asserted; but the fort only was called Fort Orange. By some, this place was named in derision, "*De Fouck*" or *The Net*, in allusion to the supposed *grasping* or *catching* properties of its inhabitants, in the accumulation of wealth. The shores of Albany never knew the footsteps of a *white man* till the month of September, in the year 1610, when Hendrick Chrystyance, who was sent up the river by Henry Hudson, to reconnoitre, or explore the country, first landed here, and as far as can be learned from tradition and some documentary evidence, somewhere in the vicinity of the present North Market. In that or the succeeding year, a party of the Dutch built a block-house on the north point of *Marte Gerritse's* or *Boyd's* island, a short distance below the Albany ferry. This house was erected for a twofold purpose, first to open a trade with the Indians in furs, and next to secure themselves against any sudden attack from the savages. But it was soon demolished, for the next spring's freshet and ice swept the whole of it away. This party then chose a hill subsequently called *Kiddenhooghten*,* within two miles of Albany, for the erection of another trading-house. The Indians called this hill Ta-wass-a-gun-shee or the *Lookout Hill*. Not long afterward, however, this post was abandoned, and a more convenient one selected. The spot thus chosen was in the vicinity of the house now called "Fort Orange Hotel," in South-Market street. The Dutch there erected a fort, "mounting eight *stone-pieces*,"† and called it "Fort Orange."

Till after the year 1625, the Dutch did not contemplate making any permanent settlements in this state. They merely visited the country in the autumn and winter, with a view to the fur-trade with the Indians, returning in the spring to Holland or "Vader-landt." But in that year, the Dutch West India Company first entertained the idea of *colonizing* their newly discovered territories in America; and accordingly offered large appropriations of land to such families as should "settle" in their colony of New Netherlands. This soon brought many over, and from that period till 1635, several of our most respectable Dutch families arrived. Among them were the ancestors of the Van Schelluyne, Quackenboss, Lansing, Bleeker, Van Ness, Pruyn, Van Woert, Wendell, Van Eps, and Van Rensselaer families. It does not appear that any stone or brick building was erected here (the fort excepted) until the year 1647, when according to a letter from "Commissary De la Montagnie" to the Dutch gov ernour at New Amsterdam [New York], a *stone building* was erected near the fort, and he complains of "the enormous libations" poured out upon the occasion of celebrating its completion; "no less," he says, "than eight ankers of brandy were consumed."* No doubt the whole garrison partook of the festivity. It is believed that the stone building recently taken down, and which stood at the corner south of the theatre in South-Pearl street, was the stone house alluded to by De la Montagnie. About ninety-six years ago, Albany was protected against sudden irruptions from the Indians, by the erection of *Palisades*,† (sometimes, though improperly, called *Stockades* or *Stockadoes*,) part of the remains of which were visible within the last thirty years. Barrack, now Chapel street, was the principal place for business. Here the Indians congregated with their furs, and here the Dutch attended "with their guilders, their blankets, brandy, powder and shot." Although we cannot vouch for the truth of Dr. Franklin's anecdote, that in those early days, a Dutchman's *hand*, placed in one scale against a quantity of fur in the other, was computed at *one pound*, and his *foot* at *two*, yet doubtless many frauds were practised upon the natives in their intercourse and trade with the Dutch. The government of the city was extremely rigid, and oftentimes cruel. It bore the character more of a *military* despotism, than that of an internal or *civil* police—heavy penalties were imposed for the least infraction of the laws for regulating trade with the Indians, and many families consequently ruined. This severity drove some of the "traders" to the Schenectady flats, where they intercepted a considerable portion of the fur on its way to Albany, and which occasioned for many years the most bitter animosities between the inhabitants of the two places. The circulating medium, or currency, then principally in use, was *seawant*.‡

The amusements of the Dutch were chiefly sleigh-riding, *Pinxter* and *Paas* holidays and wedding festivities called "*Maughet de Bruyt*." To these may be added, strange as it may seem, *funeral festivities*. *Pinxter* was celebrated during the whitsuntide holydays, and usually continued three or four days, during which booths or tents were erected for furnishing refreshments, &c., and the dance called "the totaw," was a great favourite among the inhabitants. The dance was performed by *the Blacks* of both

* *Kiddenhooghten*, or *Kidd's heights* or *hill*, received that name about the year 1701, and according to tradition, in memory of the pirate Kidd so celebrated "in song and story," who it was supposed concealed much of his ill-gotten treasure in its vicinity. It is however doubted whether Kidd ascended the Hudson river as far as Albany.

† According to Mr. Vander Kempt, the translator of our Dutch Records, they were called "*stien-gestucken*," or stone pieces, because they were loaded with *stone* instead of *iron ball*. They were formed of large and strong iron bars, longitudinally laid, and bound with iron hoops, and were of immense caliber.

* An *anker* contains 16 gallons. At this period, gin is not named as being in use; nor until the year 1652, does it appear to have been introduced here among the Dutch.

† These *palisades* consisted of large pieces of timber in close contact with each other, driven endwise into the ground, and *gates* or openings were made at suitable intervals, which were closed at night. One was called "The North Gate," and that name, till recently, was applied to that part of our city now called "the fifth ward." These palisades surrounded but a small part of the city.

‡ *Seawant* was formed of the oyster or clam-shell, and was either of a blue or purple colour, or white. The former was the most valuable, being usually worth five times more than the white.

sexes, and somewhat resembled the *Spanish Fandango*. This holyday has fallen into disuse within only the last fifteen or twenty years, but many of the inhabitants still remember our celebrated "King Charles," who, with his red uniform, black, shining face, tall figure, and commanding attitude, made this his *gala-day*, and attracted universal attention. *Paas*, or the Easter holydays, was celebrated by the breaking, or (as the Dutch phrase was) "butsing" of eggs, boiled and coloured in a decoction of logwood; and "*Maughet de bruyt, ghoe cookies oawt*,"* was the clamorous and reiterated cry of an assemblage of men and boys in the evening, about the door of the house where a wedding had been solemnized, and wo betide the windows, if the happy bridegroom did not cause cakes and apples to be distributed in great abundance among the crowd. The *funeral ceremonies* were very expensive, and usually attended by hundreds. Spiced wines, and "doode cook," (or *dead-cake*) were plentifully used, and pipes and tobacco were added to these refreshments, till clouds of smoke involved the whole company in almost Cimmerian darkness.

Although the Dutch of Beaverwyck had been proverbially charged with an inordinate love of gain, yet their records demonstrate that they were not indifferent to the more important matters of religion.

Attached from education and principle to the doctrines and faith of the *Reformed* church, and firmly believing in the unerring wisdom of the Synod of Dort, and, that, next to the Bible, that Synod had established doctrines, entitled to unqualified veneration and obedience, they held in abhorrence all who entertained different opinions from them. That they should possess this feeling most intensely against the Roman Catholicks was not indeed wonderful.

The wars between Holland and Spain were yet fresh in their recollection, and the cruelties and oppressions which their ancestors had experienced in those contests, rankled in their bosoms, and made them cling the closer to the religion of their fathers. But at that early period there were none, or but few Roman Catholicks in the Colony, against whom they could direct their resentments. Yet, of Jews, Quakers, and Lutherans, (and they were all considered by the Dutch as *Dissenters, or rather hereticks*,) there was a considerable number, particularly in New Amsterdam, [New York] for we find that as early as January, 1656, the Jews were forbidden, under severe penalties, from "trading" at Beaverwyck. In 1658, the governour and council by another edict declared that "*for the honour of God*," the Reverend Johannis Erasmus Gottewater, a *Lutheran* minister, *should leave the Colony*. In the same year, likewise, a cruel and absurd prosecution was carried on against the *Quakers* on Long Island, where some of the families and connexions of the Townsends, and others had "abetted and harboured" a number of "*that abominable sect*," (for so they were named in the proceedings of the governour and council.) Several of them were imprisoned and banished, and a few of them having appeared before the governour "with their heads covered," the sheriff was ordered "to take them *immediately* to Communipaw where they came from." But these weak and wicked persecutions did not long continue. A stop was put to them as soon as the Dutch West India Company in Holland were apprized of these proceedings, and the Jews, Quakers and Lutherans enjoyed for a season repose from their persecutors. Nay, so liberal and enlightened had the governour and council become, from the merited rebuke given them by the Dutch West India Company, that even the *Jews*, the most odious of all these sects, were admitted to the rights of "*small citizenship*."* Ministers of the Reformed religion were regularly sent from Holland to the Colony. In April, 1657, the Rev. Gideon Schaats set sail from Amsterdam for this colony, and about the same period the Dutch West India Company wrote a letter, stating that they would soon send a *bell* and a *pulpit* "for the inhabitants of Fort Orange, and of the village of Beaverwyck,† for their newly constructed *little* church." This church stood on the site of the old Dutch church near the foot of State street. In this "little church, divine service continued till the larger one was built and enclosed it, and this larger church was demolished some years since. It was a venerable pile of bygone days, and the march of improvement has seldom overturned a nobler structure. Not a few of our Dutch inhabitants mourned over its destruction as for a lost child, and some of the painted or burnt glass of its Gothick windows with other relicks of its existence, are still preserved and cherished by many of our Dutch families with religious affection and veneration.

The government of Beaverwyck was in the hands of three or more "commissaries," appointed by the governour and council, and they held their offices usually for one year. Their powers and duties are not so easily defined. They acted as a *court of justice* with very ample and discretionary powers, both civil and criminal, subject to an appeal to the governour and council. They also exercised *legislative powers* over the village, similar in some degree to the powers now exercised in this state by *trustees of villages*, or by *corporations of cities*. It is difficult to determine the limits of their powers beyond what has been mentioned, unless we should add that whatever seemed "good in their eyes," they were allowed to do, or cause to be done, and when difficulties or opposition occurred in the execution of their edicts, they had only to call on the garrison of Fort Orange to enforce them. One thing is certain, these commissaries were authorized, or did at least undertake to give or refuse permission *to any one* they thought proper to *build* houses, carry on trade, *buy* or *sell*, to make or establish manufactories, stores, shops, taverns, "beer-houses," &c. In short, their power appears to have been despotick and unlimited. The fines, forfeitures, duties, and taxes, which were imposed in Beaverwyck, were very heavy. In the month of June, 1647, Jan La

* We have not at present a Dutch dictionary at hand, to give a translation of these words. We believe they signify, "Happy bride, throw out cakes."

* Rather "*Lesser or inferiour citizenship*," which conferred the right of holding and transferring property, but not of trading without special license. "*Great citizenship*" conferred every political and civil right.

† *Beaverwyck* (one of the names of the city of Albany under the Dutch) is synonymous with *Beaver-town* or borough. "Wyck" is equivalent to the English word *burgh* or *borough*, as Peterborough, Williamsburgh, &c., or, as the Dutch have it, *Willwyck, Beaverwyck*, &c.

Battie, who probably, judging from his name, was a Frenchman, (for many of the Huguenots had sought an asylum here,) applied for permission "to *build* a brewery" in this city, and it was granted him "on his paying yearly *six* beavers." Now this could not have been less than a duty of from sixty to eighty dollars, and perhaps one hundred dollars by the year! The revenues arising from the sale of beer in this city were enormous, considering the paucity of its inhabitants. The duties were usually *farmed out*, or sold at auction, and during this year and for several years afterward the duties on beer in Beaverwyck exceeded eight hundred dollars—a pretty strong evidence that the Dutch were, as Mr. Vanderkemp called them, "*famous* beer-drinkers." It cannot be clearly ascertained whether this beverage was extracted from *barley* or *wheat*, but we incline to think it was the latter, as but little barley was then cultivated in the Colony. The laws against *Sabbath-breaking* imposed very heavy fines on offenders, and many cases are on record in which the mulcted culprits prayed in vain for mercy. Still, there was a kind of relaxation indulged which must somewhat move our risible muscles. Thus one regulation declared "that no beer should be bought, drank, or sold on Sunday, *after the bell had tolled for church*," impliedly allowing it *before*. But of all the objects to which the Dutch extended their protecting and jealous care, that of the *fur-trade* with the Indians claimed the greatest, and was almost the all-absorbing subject of their edicts and proclamations. The Indians, as has been stated, usually obtained blankets, gun powder, guns, ball, &c., in exchange for their furs, and consequently the Dutch West India Company attempted to *monopolize* the entire trade in blankets, powder, &c. Any invasion of this right was severely punished. By an ordinance or law passed in the year 1639, it was declared that "if any one without previous license should sell any gun-powder, &c. to the Indians, he should suffer *death*, and the *informer* under this law was entitled to a reward of fifty guilders."* The laws of Draco have scarce a parallel to this, nor, can it be justified on the ground that the Colony would otherwise have been in danger from Indians having *arms and munitions of war in their hands*, and that, therefore, great caution and severity were absolutely necessary for their safety. No, the Indians on the *west bank* of the Hudson were *friendly and pacifick*, and the Dutch in Beaverwyck traded with none other. The law, whatever might have been the pretext, was clearly dictated by the love of gain—the spirit of monopoly. Of the same character, and to prevent strangers from travelling in the interiour without the knowledge of the magistrates, was a regulation or "placard" adopted in 1653, and with some modifications continued for several years after. This "*placard*" (which *word*, according to Dr. Johnson, is derived from the Dutch and French, and signifies "edict, declaration, manifesto,") is so remarkable, that we think a part of it should be given in its very terms. It is in these words, "all persons are hereby notified that henceforth until further orders, *one very Monday*, *two* yachts or barges *may* start from here [New York] to Fort Orange, *with privilege* to take together, or one by one, *not more than six passengers* who shall receive due certificates for the purpose, and the skippers and passengers may pursue their journey *having such passports*, and which shall be given them by the honourable Arent Van Hattem and Willem Beekman, at the office of Jan de Yonge on *Saturday* morning, at eight o'clock, *precisely*." It bears date New Amsterdam, August 7, 1653, and is signed "Arent Van Hattem, P. L. Vandergrist, Willem Beekman, Johannis Willem Van Bruggen." Genius of Clinton and of Fulton! what would ye say if you could have beheld this puny attempt of our *Mynheers* not more than one hundred and eighty years since, to stop the progress of navigation, the march of human intellect, the development of our moral and physical energies, and the increase of our trade, commerce, and manufactures! And could Governour Stuyvesant and his contemporaries now arise and witness the great improvements of the present age in all these and many other respects, would not their *tobacco-pipes* drop from their lips, and would they not like Rip Van Winkle be astounded at the *wonderful changes* which they beheld! But raillery apart, our good burghers of Beaverwyck were not disposed tamely to submit to this infringement of their privileges. On receiving the first intelligence of this edict, they seized and dismantled the vessel which brought it, and attempted to *Lynch* (to use a *modern* phrase) the commander of it, but who fortunately escaped the severe drubbing intended for him. The commissaries of Beaverwyck were alarmed, the soldiers from the fort were called to their aid, and after a smart skirmish order was restored, the vessel recaptured and sent back to New York. Governour Stuyvesant summoned his council and declared that "if ever the Beaverwyckers should repeat this offence, he would put them out of his protection, and they should never have another *dominie* [minister], *sloop* or *soldier* from him." (To be deprived of the *last* would have been no great matter of regret to the Beaverwyckers.)

Fort Orange at this time was in a tolerable state of repair. The garrison consisted of forty soldiers, and occasionally was increased to sixty or even one hundred, as Stuyvesant thought the exigences of the times required.

According to the records, "an elegant large house with a balustrade," had been built by Dirck Cornelise of Wesel, within the precincts of the fort, and also, "eight small dwelling-houses for the people of the fort." But one can hardly refrain from smiling, when he reads the complaint made in the year 1639, by the commander of the fort to Governour Stuyvesant, stating, "that the fort was in a miserable state of decay, *and that the hogs had destroyed a part of it*." The proceedings of our Dutch courts at Beaverwyck even in *civil suits*, evince more of the spirit of litigation than is compatible with the morals of an enlightened people, and those in *criminal cases*, and for *violations of ordinances*, furnish the same melancholy evidence. The *fines* imposed were generally distributed in the sentence, in this way, "one third to the church, one third to the public,

* Mr. Vanderkemp, our Dutch translator, estimates *a guilder* at three shillings and four pence currency, or forty-one cents six mills and six tenths of a mill. The author of these reminiscences entertains some doubt of the accuracy of this computation, or he suspects there were *two* different kinds of guilders. Our Dutch inhabitants called an "eighteen penny piece," [or pistareen] "drie guilders," or *three guilders*, which would make the guilder equivalent to only six pence currency.

and one third to the attorney-general." No doubt the office of attorney-general was very profitable and eagerly sought after. *Taxes* were imposed on *cattle* called *hooru gelt*, and on land, called *morgan tal*;* besides there were other taxes on property which produced a handsome revenue to the city. Heavy duties were also laid on *tobacco*, of which large quantities were raised for exportation on Manhattan island, and of a quality, according to the letters from the Dutch West India Company, "equal, if not superiour, to the best Virginia." *Goats* were likewise taxed, animals that were in great abundance in the colony. Yet, under all these exactions and taxes, the colony flourished and increased in population and resources, owing, no doubt among other causes, to the extravagant profits derived from the fur-trade."

Am. Journal.

[A Native of Madagascar.]

MADAGASCAR.

Among the many avenues which American enterprise has opened for American manfactures, the island of Madagascar deserves attention. Here, our countrymen have established shops, in which they keep a variety of goods, which are given in exchange for the different articles brought in by the natives. Here, too, they have erected large slaughter-houses, in which bullocks are killed, and the beef packed and prepared for shipping.

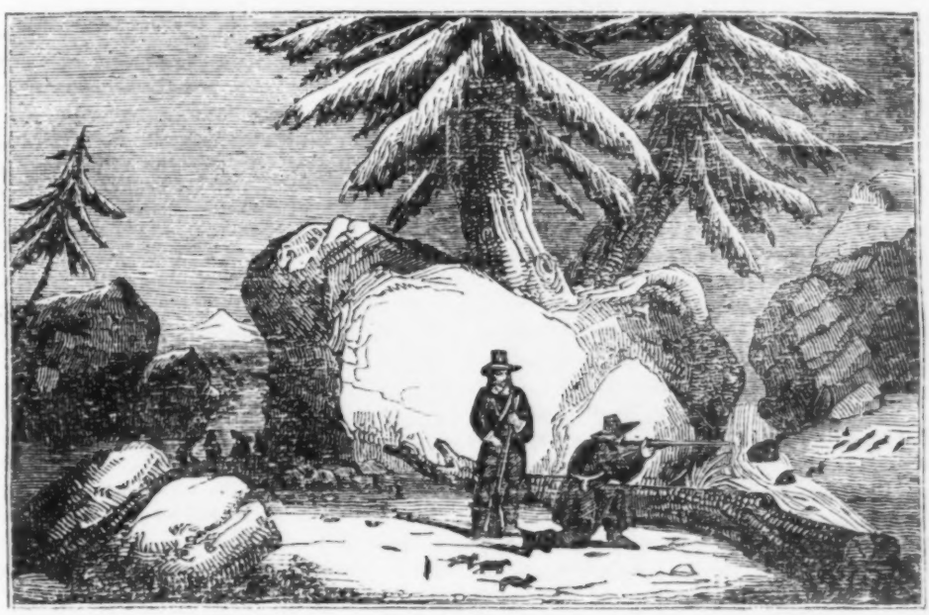
The engraving represents a native of Madagascar, in the costume of his country. His dress consists of a large white garment of native manufacture, ornamented with seven black streaks near the edges, and one across the middle; this is secured round the waist, a small part hanging down and forming a sort of hilt, while the rest is thrown gracefully over the shoulders. Round the neck is suspended a string of beads, and drops of cut glass of various sizes and colours. On the wrists are bungles of silver, and the long black hair is plaited into small tails, with a knot at the end. These are trimmed so as not to hang below an imaginary line above the eyebrow and across the ear: while from one in the centre of the forehead is suspended a circular piece of neatly-turned ivory, about an inch and a half in diameter.

Madagascar contains many different tribes; among them the Ovahs are justly regarded as an interesting people, and may possibly claim our attention at another time. We shall conclude this article, however, with some account of the Kimoes, a race of pigmies, inhabiting the interiour of the island. The following details in regard to them, are published in Hosack and Francis's American Medical and Philosophical Register, vol. ii. The communication is from Dr. Chisholm. He remarks:—

"During a few months' residence in the island of St. Croix, in 1796, I met at the house of one of my friends, a French gentleman of respectability, of Martinico, but last from the island of St. Thomas. From this gentleman, Mr. Baudin, I received the following very curious and interesting narrative. Mr. Baudin stated to me, that his brother, also a native of Martinico, who had been bred to science, and had made natural history and medicine his more immediate pursuit, was employed by the late emperour of Germany on a voyage which had, in part, for its object, the discovery of a singular race of men in the island of Madagascar, of small stature, or pigmies. He proceeded on this voyage, from the port of Trieste, in the year 1792 or 1793. The interesting object of it was completely obtained, for Mr. Baudin received such information, and such assistance from the natives, as enabled him to penetrate into the interiour parts of Madagascar, where the nation of these singular people was established. He resided fifty days among them, and gained their confidence so entirely, that one man, thirty-five years old, was induced to embark with him, and he was permitted to take away a child of a year old. Mr. Baudin gave the following particulars of the Kimoes: They are never of larger stature, when fully grown, than from thirty-two to thirty-six inches; they are of a tawny, or very light copper colour; they are very active and intelligent, and use, as offensive weapons, the bow and arrow; they are remarkably well-proportioned, and possess very handsome features, with long black hair; and the community Mr. Baudin resided among amounted to eight thousand; but the whole nation was very numerous. The man and child died some time after

* A *morgan* of land contained two and one seventh English acres, so that seven morgans are equal to fifteen English acres.

the ship left Madagascar; the body of the former was properly injected, and prepared by Mr. Baudin, and that of the latter preserved in spirits. These preparations, with other curious subjects of natural history, were sent to my informant by his brother, and, as a place of greater safety, he deposited the collection at Mr. Ekard's house in St. Thomas. This narrative recalled to my memory some account I had read in the Critical Review, 1792, of the Abbi Rochon's voyage to Madagascar, in which a nation of pigmies is mentioned, as actually existing in that island: but to ascertain the point, I visited St. Thomas, in November, 1796, when I found unfortunately that Mr. Baudin had gone to North America; but his friend, Mr. Fletcher, furnished me with the means of gratifying my curiosity. I was very particular in my measurement, in which the late Mr. John Ryan, of St. Croix, an excellent naturalist, assisted me, and found the dimensions as follows:—The whole length, thirty-two inches; circumference of the scull, eighteen and a half inches; from the coronal suture to the chin, six and a half inches; nasal bones, one and one fourth inches; length of chest, six and one fourth inches; of abdomen, seven inches; femur, six and a half inches; tibia, six and a half inches; foot, four and three eighths inches; humerus, five and a half inches; fore-arm five inches; hand, to extremity of the index, three and three eighths inches; teeth, dentes canini, two; incisores, four; molares, only four visible in each jaw, all fully formed, and beyond doubt adult. The preparation of the child measured one foot in length. I forbear to make any remarks, further than to say, that here the authority seemed respectable, there was no inducement to impose, the information came spontaneously, nor was there any theory to support, it appeared, in truth, a mere matter of fact, related by the brother of the person who had resided among the Kimoes, and in whose possession specimens were preserved, which specimens I actually examined. Compare this with the account which M. Rochon has given, and principally from the information of M. De Modavi, the governour of Fort Dauphine, in 1769. This officer fully ascertained the existence of the Kimoes as a nation, by sending detachments into the country for that purpose. He concludes with this remarkable observation, that 'it is certainly nothing wonderful to meet with dwarfs in a country so vast and extensive as Madagascar, the surface of which contains various climates, and abounds with a multitude of different productions; *but a real race of pigmies living in society, is a phenomenon that cannot well be passed over in silence.*' As M. Baudin returned to New York, you may probably have heard of, or have known him, and where he at present resides; in either case, you may be enabled to obtain access to further and more circumstantial information on a point of physiology extremely useful and interesting. I am aware that in the only other account of Madagascar we have of modern date, viz., Drury's narrative, no mention is made of the Kimoes; and yet Flacient mentions them, although he disbelieves their existence. Flacient and Modavi were men in authority, governours of French settlements; Drury, a prisoner, and extremely ignorant."



[Sable-hunting.]

THE SABLE-HUNTERS.

HARD is the lot of the sable-hunter; doomed by the edict of an unfeeling tyrant to chase that beautiful animal, the sable (*M. zibellina*), so much celebrated for the rich furs in which he is wrapped, and so admirably adapted to the cold regions of the farthest North. The sable inhabits high frozen mountains; its capture, during winter, and in the midst of eternal snow, is the most painful of human labours. In former times, the hunting of these animals was a task imposed on Siberian exiles; but as that country became populous, the sables gradually retired into more lonely forests, and still higher mountains: yet even there, the unhappy exiles are

constrained to follow them. We are told that, when about to proceed on this hazardous undertaking, they form themselves into troops of from five to forty each; if more numerous, they subdivide into lesser parties, and each chooses a leader: one chief directs the expedition. An interpreter, and a small covered boat, laden with provisions, accompany the separate divisions, with a dog and net for every two men, and a vessel to bake their bread in. Thus equipped, the parties set forth on their assigned course. They ascend the rivers, and draw up their boats till they have arrived at the hunting-country, where they stop, erect their huts, and wait till the waters are frozen over, and the hunting-season commences. They then assemble, unite in prayer for success, and commence their arduous enterprise.

More fully to appreciate the hardships to which these poor hunters are exposed, let us consider the general aspect of the country. High-peaked mountains, capped with ice, are conspicuous on every side; the earth, covered with snow during nine months of the year, is extremely barren, and every where encumbered with unwholesome marshes, and impenetrable thickets; the native region of black foxes, sables, and ermines, creatures invaluable to the inhabitants, as supplying both food and clothing.

> There, through the prison of unbounded wilds,
> Barr'd by the hand of nature from escape,
> Wide roams the Russian exile. Nought around
> Strikes his sad eye, but deserts lost in snow,
> And heavy-loaded groves, and solid floods,
> That stretch, athwart the solitary vast,
> Their icy horrours to the frozen main;
> And cheerless towns far distant, never bless'd,
> Save when its annual course the caravan
> Bends to the golden coast of rich Cathay,
> With news of human kind. Yet there life glows;
> Yet cherished there, beneath the shining waste,
> The furry nations harbour; tipt with jet,
> Fair ermines, spotless as the snows they press;
> Sables of glossy black, and dark embrown'd,
> Or beauteous streak'd with many a mingled hue,
> Thousands besides, the costly pride of courts.

Such of the sable-hunters as penetrate into the woods, mark the trees, in order to retrace their steps. In their hunting-quarters they form huts, and bank up the snow around them. Near these they place traps, then advance farther, and place others, still erecting huts as they go on, and returning from time to time, to take out and skin the game. While thus employed, they are supplied with provisions, which are brought on sledges from such magazines as they have formed on their route. When the sables become scarce, the hunters trace them over the new-fallen snow to their holes, place nets at the entrance, and sometimes watch the coming out of the animals for two or three days. Thus circumstanced, these hapless exiles are frequently so pinched with hunger, that in order to alleviate its intolerable cravings, they tie two thin boards, one to the pit of the stomach, another to the back, drawing them together by cords placed at the end. Such are the hardships which our fellow-creatures undergo, to supply the wantonness of luxury. When the season of the chase is over, the hunters reassemble, to report the number of sables they have taken, make complaints of offenders against their regulations, punish delinquents, and share the booty. They then continue at headquarters till the rivers are clear of ice, when they return home, and give to every church the dedicated furs.

BIOGRAPHY.

POCAHONTAS.—Born, 1594—Died, 1617.

Intimately connected with the history of Captain John Smith, by whose intrepidity and perseverance the colony at Virginia was permanently settled, is Pocahontas, the daughter of the chief Powhatan whose original Indian name was Wahansonacock. Her connexion with American history, commences when she was about fourteen years of age, and the occasion which called forth the energies of her character was the capture of Captain Smith in the year 1607. Captain Smith having refused while a prisoner, to assist in destroying Jamestown, he was led from place to place by the Indians and having been shown to the different nations of the dominions of Powhatan, the Indians proceeded to the king. Here more than two hundred of those grim courtiers stood wondering at him, as he had been a monster, till Powhatan and his trayne had put themselves in their greatest braveries: the chief was seated before a fire, upon a seat like a bedstead, having on a robe of rackoon skins, "and all the tayles hanging by." On each side of him sat a young woman; and upon each side of the house two rows of men, and with as many women behind them. These last had their heads and shoulders painted red—some of whose heads were adorned with white down; and about their necks white beads. On Smith's being brought into the presence of Powhatan, all present joined in a great shout. "The queen of Apamatuck was appointed to bring him water to wash his hands, and another brought him a bunch of feathers, instead of a towel, to dry them." Then, having feasted him again, "after their best barbarous manner they could, a long consultation was held, but the conclusion was, two great stones were brought before Powhatan—then as many as could lay hands on him, dragged him to them and thereon laid his head, and being ready, with their clubs, to beat out his brains, Pocahontas, the king's dearest daughter, when no entreaty could prevail, got his head in her armes, and laid her own upon his, to save him from death."

Powhatan was unable to resist the extraordinary solicitations and sympathetic entreaties of his kind-hearted little daughter, and thus was saved the life of Captain Smith; a character, who, without this astonishing deliverance, was sufficiently renowned for escapes and adventures.

The old sachem, having set the sentence of death aside, made up his mind to employ Smith as an artisan; to make, for himself, robes, shoes, bows, arrows, and pots; and, for Pocahontas, bells, beads, and copper trinkets, but he was soon liberated.

Soon after, the difficulties between Powhatan and the English having been adjusted, we find Pocahontas bringing provisions almost every other day to Jamestown. This state of things however did not continue long, and in 1608, Powhatan having been detected in a plot against the colonists, his daughter came with presents to excuse him, pretending that the mischief was done by his ungovernable chiefs. Smith accepted her mediation, released his prisoners and thus peace was again restored, but it was soon broken. Powhatan having been foiled in numerous artifices against the settlers, resolved to fall upon them in their cabins. But here again

[Portrait of Pocahontas.]

Pocahontas saved the lives of Smith and his attendants. She came alone in a dismal and wintry night through the woods and informed Smith of her father's design. For this most signal favour he offered her such rich articles as he thought would please her: but she would accept of nothing and with tears standing in her eyes, said if her father should see her with any thing, he would suspect what she had done, and instant death would be her reward; she then retired by herself into the woods.

The following incidents in regard to the life of this heroick female are from Drake's Biography and History of the Indians of North America, a work of great value. Mr. Drake remarks:—

"While Captain Smith was upon an expedition into the country, with an intention of surprising Powhatan, there happened a melancholy accident at home, to a boat's crew, which had been sent out in very severe weather, by one who was impatient to have the direction of matters. In the boat were Captain Waldo, Master Scrivener, the projector of the expedition, Mr. Anthony Gosnold, brother of the well-known Bartholomew Gosnold, and eight others. By the sinking of the boat, these all perished, and none knew what had become of them, until their bodies were found by the Indians. The very men on whom Smith depended to remain at the fort for his succour, in case he sent for them, were among the number. Therefore, to prevent the failure of this expedition, somebody must be sent to apprize Smith of the catastrophe. None volunteered for the hazardous service, but Mr. Richard Wuffin, who was obliged to undertake it alone. This was a time when Powhatan was very insolent, and urged daily the killing of Smith upon his men. Nevertheless, after many difficulties, he arrived at Werowocomoco. Here he found himself amid preparations for war, and in still greater danger than he had yet been. But Pocahontas appeared as his saviour. Knowing the intention of the warriours to kill him, she first secreted him in the woods, and then directed those who sought him in an opposite direction from that he had gone; so, by this means, he escaped, and got safe to Smith at Pamunkey. This was in the winter of 1609.

"We next hear of her saving the life of Henry Spilman, who, was one of thirty that went to trade, upon the confidence of Powhatan, but all of whom except Spilman, were killed by his people.

"From 1609, the time Smith left the country, until 1611, Pocahontas was not seen at Jamestown. At this time, she was treacherously taken prisoner by Captain Argal, and kept by the English to prevent Powhatan from doing them injury, and to extort a

great ransom from him, and such terms of peace as they should dictate. At the time she was betrayed into the hands of Captain Argal, she was in the neighbourhood of the chief of Potomack, whose name was Japazaws, a particular friend of the English, and an old acquaintance of Captain Smith. Whether she had taken up her residence here, or whether she was here only upon a visit, we are not informed. But some have conjectured, that she retired here soon after Smith's departure, that she might not witness the frequent murders of the ill-governed English, at Jamestown. Captain Argal was in the Potomack river, for the purpose of trade, with his ship, when he learned that Pocahontas was in the neighbourhood. Whether Japazaws had acquired his treachery from his intercourse with the English, or whether it were natural to his disposition, we will not undertake to decide here; but certain it is, that he was ready to practise it, at the instigation of Argal: and for a copper kettle for himself, and a few toys for his squaw, he enticed the innocent girl on board Argal's ship, and betrayed her into his hands. It was effected, however, without compulsion, by the aid of his squaw. The captain had previously promised that no hurt should befall her, and that she should be treated with all tenderness. This circumstance should go as far as it may to excuse Japazaws. The plot to get her on board was well contrived. Knowing that she had no curiosity to see a ship, having before seen many, Japazaws's wife pretended great anxiety to see one, but would not go on board unless Pocahontas would accompany her. To this she consented, but with some hesitation. The attention with which they were received on board soon dissipated all fears, and Pocahontas soon strayed from her betrayers into the gun-room. The captain, watching his opportunity, told her she was a prisoner. When her confinement was known to Japazaws and his wife, they feigned more lamentation than she did, to keep her in ignorance of the plot; and, after receiving the price of their perfidy, were sent ashore, and Argal, with his pearl of great price sailed for Jamestown. On being informed of the reason why she was thus captivated, her grief, by degrees subsided.

The first step of the English, was to inform Powhatan of the captivity of his daughter, and to demand of him their men, guns and tools, which he and his people had, from time to time, taken and stolen from them. This unexpected news threw the old, stern, calculating chief into a great dilemma, and what course to take he knew not; hence it was three months before he returned any answer. At the end of this time, by the advice of his council, he sent back seven Englishmen, with each a gun which had been spoiled, and this answer: that when they should return his daughter, he would make full satisfaction, and give them five hundred bushels of corn, and be their friend for ever; that he had no more guns to return, the rest being lost. They sent him word, that they would not restore her, until he had complied with their demand; and that, as for the guns, they did not believe they were lost. Seeing the determination of the English, or his inability to satisfy them, was, we apprehend, the reason why they "heard no more from him for a long time after."

In the spring of the year 1613, Sir Thomas Dale took Pocahontas, and went, with a ship, up Powhatan's river to Werowocomoco, the residence of her father, in hopes to effect an exchange, and bring about a peace. Powhatan was not at home, and they met with nothing but bravadoes, and a disposition to fight, from all the Indians they saw. After burning many of their habitations, and giving out threats, some of the Indians came and made peace, as they called it, which opened the way for two of Pocahontas's brothers to come on board the ship. Their joy at seeing their sister may be imagined.

A particular friendship had some time existed between Pocahontas and a worthy young Englishman, by the name of John Rolfe; which, at length, growing into a sincere attachment, and being mutual between them, he made known his desire to take her for his companion. This being highly approved of by Sir Thomas Dale, and other gentlemen of high standing and authority, a consummation was soon agreed upon. Acquainting her brothers with her determination, it soon came to the knowledge of her father also; who, as highly approving of it as the English, immediately sent Opachisco, her uncle, and two of his sons, to witness the performance, and to act as her servants upon the occasion: and, in the beginning of April, 1613, the marriage was solemnized according to appointment. Powhatan was now their friend in reality; and a friendly intercourse commenced, which was continued, without much interruption, until his death.

Pocahontas lived happily with her husband, and became a believer in the English religion, and expressed no desire to live again among those of her own nation. When Sir Thomas Dale returned to England, in 1616, Pocahontas accompanied him, with her husband, and several other young natives. They arrived at Plymouth on the twelfth of June of that year. She met with much attention in that country, being taken to court by the Lord and Lady Delaware, and others of distinction. She, was, at this time, called the Lady Rebecca. Her meeting with Captain Smith was affecting; more especially as she thought herself, and very justly, no doubt, too slightly noticed by him, which caused her much grief. Owing to the barbarous nonsense of the times, Smith did not wish her to call him father, being afraid of giving offence to royalty, by assuming to be father of a king's daughter. Yet he did not intend any cause of offence, and did all in his power to make her happy. At their first interview, after remaining silent some time, she said to him: "You promised my father, that what was yours should be his; and that you and he would be all one. Being a stranger in our country, you called Powhatan father; and I for the same reason, will now call you so. You were not afraid to come into my father's country, and strike fear into every body but myself; and are you here afraid to let me call you father? I tell you, then, I will call you father, and you shall call me child; and so I will for ever be of your kindred and country. They always told us that you were dead, and I knew not otherwise, till I came to Plymouth. But Powhatan commanded Tomocmo to seek you out, and know the truth, because your countrymen are much given to lying."

"The useful and worthy young Pocahontas, being about to embark for her native country, in the begin-

ning of the year 1617, fell sick at Gravesend, and died; having attained only the age of 22 years. She left one son, whose name was Thomas Rolfe, very young; and whom Sir Lewis Steukley, of Plymouth, desired to be left with him, that he might direct his education. But, from the unmanly part this gentleman took against the unfortunate Raleigh, he was brought into such merited disrepute, that he found himself obliged to turn all his attention to his own preservation; and the son of Pocahontas was taken to London, and there educated by his uncle, Mr Henry Rolfe. He afterward came to America, to the native country of his mother, where he became a gentleman of great distinction, and possessed an ample fortune. He left an only daughter, who married Colonel Robert Bolling, and died, leaving an only son, Major John Bolling, who was the father of Colonel John Bolling, and several daughters; one of whom married Colonel Richard Randolph, from whom are descended those bearing that name in Virginia, at this day."

NATURAL HISTORY.

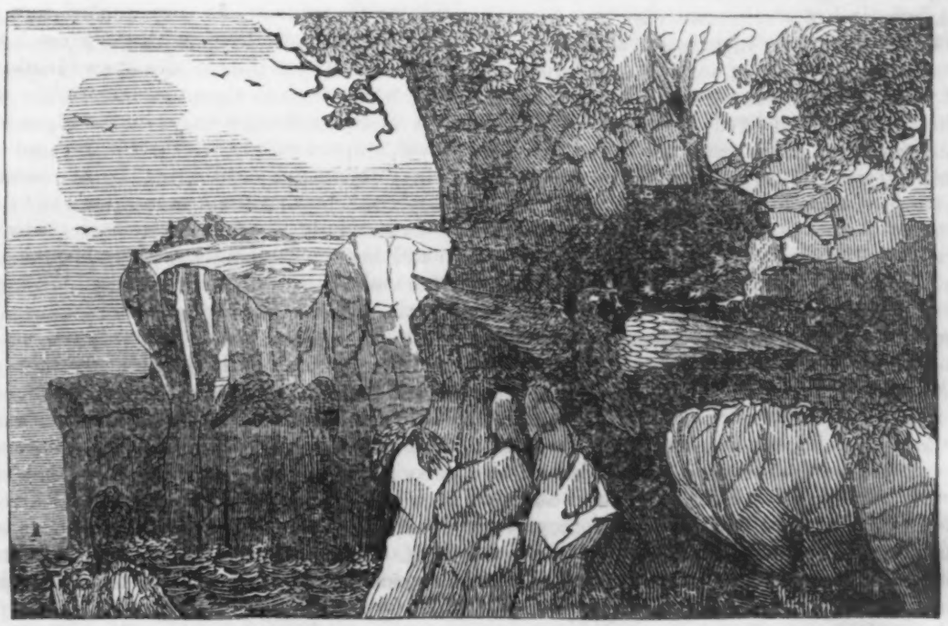
SEA EAGLE.

THE cut below represents the bird of Washington feeding its young. This bird, sometimes called the great sea eagle, is considered by Mr Audubon to be the finest bird of this genus: he therefore named it the bird of Washington. The great sea eagle, or bird of Washington, is very rare, confining itself usually to lonely situations; occasionally, however, it follows the hunters, to feed on the entrails of the animals they kill, when excluded by ice from its favourite water-haunts, where in open weather it dives for fish.

A naturalist, who was extremely anxious to meet with one, had long laboured in vain, when one day, as he was engaged in collecting cray-fish near the Ohio, a large river in North America, he chanced to observe on the rocks, which at that place were nearly perpendicular, a quantity of white droppings, which led him to conclude that owls resorted thither; but, having been assured by a more experienced companion, that they must have fallen from a nest of one of the long-looked-for birds of Washington, and that the old ones caught fish on the river, he determined to watch for them, and in high expectation seated himself, with his friend, about a hundred yards from the foot of the rock. For two long hours he waited with great impatience and curiosity, when the approach of the old eagles was announced by loud hissings, which he soon perceived to be utterred by two young ones crawling from the extremity of their hole, to receive a fine fish presented by the parent, as it held itself to the projecting rock, something after the manner of a house swallow, its tail spread out, and its wings partly so. That they might not be observed, or frighten the birds away, they crouched down, and kept perfect silence, not whispering a single word. In a few minutes the other parent joined its mate: it also had brought a fish, but being not so bold, or more suspicious, before it ventured to alight, it glanced its quick and piercing eye around, and instantly catching sight of the spectators, dropped the prey, and with a loud shriek communicated its alarm to the other, which, loosing its hold, hovered over their heads, keeping up a sort of growling threatening cry of intimidation.

At the same moment, the young birds, as if aware of some danger, shrunk back, and buried themselves in the chink of the rock; and, as farther waiting would have been unavailing, the observers went to the bottom of the precipice, and picked up the fish that had fallen; it proved to be a sort of large perch, weighing about five pounds and a half; the upper part of the head was broken in, and the back much torn by the talons of the eagle. The sport being over, as they journeyed home, they agreed to return, and endeavour to procure, both the old and young birds, either dead or alive.

Accordingly, on the third day following, they as-



[Great Sea-Eagle, or Bird of Washington, feeding its Young.]

sembled with some additional hands, well provided with guns, and materials for ensuring success, and proceeded to post themselves, some at the foot and some at the top of the rock; but all in vain. The eagles had been beforehand, and proved too cunning for them. The young birds had disappeared, and they passed the whole day without seeing or hearing any thing either of them or the old ones. It appeared from their observations, that the old ones had actually removed their young to fresh quarters, but as they did not seem sufficiently grown to use their wings, how they could accomplish such a removal, was a mystery not to be solved.

Two years afterward, the same person was fortunate enough to shoot one dead on the spot, as it sat upon a low tree, attracted, as was supposed, by the scent of some slaughtered hogs. The bird in this case seemed to be perfectly fearless, not only allowing the sportsman to approach within easy gunshot distance, but looking at him all the time with an undaunted eye.

Having had, since first seeing one of this species, other opportunities of observing their habits, he has given some very interesting details. In its flight it differs from another sort of eagle for which it is often taken; when looking after fish in the water below, it makes very wide circles, and when it sees one, it falls gradually in a circuitous, spiral manner, as if with an intention of checking any retreating movement of its prey. When within a few yards, however, it darts down like a shot, and seldom misses its object. As it is so constantly exposed to the water, its feathers are provided with a greater portion of that oily substance common to many birds, and they shine as if covered with a thin coating of clear gum. An anecdote is related by Dr. Richardson, who accompanied that enterprising traveller, Sir John Franklin, as current on the plains of Saskatchewan in North America, of a half-bred Indian, who was vaunting his prowess before a band of his countrymen, and wishing to impress them with a belief of his supernatural power. In the midst of his harangue, an eagle was observed suspended as it were in the air directly over his head; upon which, pointing aloft with his dagger, which glistened brightly in the sun, he called upon the royal bird to come down. To his own amazement, no less than to the consternation of the surrounding Indians, the eagle seemed to obey the charm, for instantly shooting down with the velocity of an arrow, it impaled itself on the point of his weapon.

CROWNED CRANE.

We have recently had an opportunity of examining a pair of these remarkable birds at the Zoological Institute, New York; they were brought from the coast of Africa.

This beautiful bird measures when fully grown about four feet in total height. Its plumage is of a bluish slate colour on the neck, and on both surfaces of the body; the quill-feathers of the tail and the primaries of the wings are white. The fore part of the head is covered by a close tuft of short, smooth, even, velvety feathers of a deep black; and behind these rises a very remarkable crest, consisting of a large number of flat yellowish filaments, each twisted spirally on itself, fringed along its edges with a

[The Crowned Crane.]

series of black-pointed hairs, and terminating in a blackish pencil. These filaments are of nearly uniform length, and measure four or five inches from base to tip. They take their origin from a roundish space on the back of the head, and expand equally at their extremities into a circle of considerably larger diameter than the head itself. The bill, legs, and feet, are of a dusky black; and the iris is remarkable for being almost destitute of colour. As in most of the birds of this family, the feathers of the lower part of the neck are long, narrow, and gracefully dependent over the breast.

The crowned crane is a native of Guinea and the neighbouring countries; it is also found at Cape Verd. In a wild state it is natural to conclude that the crowned crane is a migratory species; but we know little of its habits except in captivity. Like the other cranes it frequents swampy places, subsists partly upon fishes, worms, and insects, and partly on vegetable substances. At Cape Verd, we are told, it approaches so nearly to a state of domestication as to come of its own accord into the poultry-yards and feed along with the tame birds confined in them. It perches in the open air to take its rest, and walks with a slow and somewhat stately gait; but, with its wings expanded and assisted by the wind, it scuds along with great rapidity. Its flight too is lofty, and capable of being continued for a very considerable time.

In captivity it is perfectly quiet and peaceable, readily becomes familiarized with man, and seems even solicitous for his company. When at rest it usually stands, like the other cranes, upon one leg, with its long neck bent inward, and its body supported in an almost horizontal position. But if disturbed in its repose, it lengthens out its neck, brings that, together with its body, into an almost vertical line, and assumes a bold and imposing attitude. Its proper note bears a considerable resemblance to that of the crane, and is compared by Buffon to the hoarse sound of a trumpet. It has also another note resembling the clucking of a hen, but louder and more disagreeable. Grain of all kinds, but particularly rice, forms its usual food in a state of captivity, and it is especially delighted by the occasional addition of a few living fishes.

[Red Squirrels.]

SQUIRRELS.

In the warm summer day, the red squirrels may be seen skipping around the trees and fences, gathering their winter's store of nuts and acorns. The visiter may amuse himself for hours in watching their active gambols, but to the farmer their visits are by no means pleasant; a late writer states the following particulars in regard to them:—

During our voyage, just at the head of the rapids, our attention was drawn to some small object in the water, moving very swiftly along; there were various opinions as to the swimmer, some thinking it to be a water-snake, others a squirrel, or a muskrat; a few swift strokes of the paddles brought us up so as to intercept the passage of the little voyager; it proved to be a fine red squirrel, bound on a voyage of discovery from a neighbouring island. The little animal, with a courage and address that astonished his pursuers, instead of seeking safety in a different direction, sprung lightly upon the uplifted paddle, and from thence with a bound to the head of my astonished babe, and having gained my shoulder, leaped again into the water, and made direct for the shore, never having deviated a single point from the line he was swimming in when he first came in sight of our canoe. I was surprised and amused by the agility and courage displayed by this innocent creature; I could hardly have given credence to the circumstance, had I not been an eyewitness of its conduct, and moreover been wet plentifully on my shoulder by the sprinkling of water from his coat.

Perhaps you may think my squirrel anecdote incredible; but I can vouch for the truth of it on my own personal experience, as I not only saw but felt it: the black squirrels are most lovely and elegant animals, considerably larger than the red, the gray, and the striped: the latter are called by the Indians "chitmunks."

These little animals are very fond of the seeds of the pumpions, and you will see the soft creatures whisking about among the cattle, carrying away the seeds as they are scattered by the beasts in breaking the pumpions: they also delight in the seeds of the sunflowers, which grow to a gigantick height in our gardens and clearings. The fowls are remarkably fond of the sunflower-seeds, and I saved the plants with the intention of laying up a good store of winter food for my chicks. One day I went to cut the ripe heads, the largest of which was the size of a large dessert-plate, but found two wicked red squirrels busily employed gathering in the seeds, not for me, be sure, but themselves. Not contented with picking out the seeds, these little thieves dexterously sawed through the stalks, and conveyed away whole heads at once: so bold were they that they would not desist when I approached till they had secured their object, and, encumbered with a load twice the weight of their own agile bodies, ran with a swiftness along the rails, and over root, stump, and log, till they eluded my pursuit.

Great was the indignation expressed by this thrifty little pair on returning again for another load to find the plant divested of the heads. I had cut what remained and put them in a basket in the sun, on a small block in the garden, close to the open glass door, on the steps of which I was sitting shelling some seed-beans, when the squirrels drew my attention to them by their sharp scolding notes, elevating their fine feathery tails and expressing the most lively indignation at the invasion: they were not long before they discovered the Indian basket with the ravished treasure; a few rapid movements brought the little pair to the rails within a few paces of me and the sunflower-heads; here, then, they paused, and sitting up, looked in my face with the most imploring gestures. I was too much amused by their perplexity to help them, but turning away my head to speak to the child, they darted forward, and in another minute had taken possession of one of the largest of the heads, which they conveyed away, first one carrying it a few yards, then the other, it being too bulky for one alone to carry it far at a time. In short, I was so well amused by watching their manoeuvres that I suffered them to rob me of all my store. I saw a little family of tiny squirrels at play in the spring on the top of a hollow log, and really I think they were, without exception, the liveliest, most graceful creatures I ever looked upon.

Carrageen Moss.—This marine plant is found in abundance along our coast. It is used more or less for making gellies, and is sometimes converted into isinglass. A foreign journal states that a new use for it has been discovered in England, viz., that of *sizing* in the manufactory of cotton and muslins, and that a gentleman in Manchester had declared his readiness to purchase thirty or even sixty tuns of the plant, if that quantity could be procured.

REVOLUTIONARY REMINISCENCES.

BATTLE OF SARATOGA.

The following graphically simple narrative, from the personal recollections of an eyewitness and participator, of the glorious series of events immediately preceding and attending the capture of Burgoyne—forming what we must regard as the brightest page in American history—is from the pen of E. Mattoon, Esq., of Amherst, Mass., an officer in the Revolutionary army of the North—one of the few yet spared to invigorate the patriotism and inspire the reverential gratitude of the existing and rising generations. The circumstances which awakened and drew forth these reminiscences, are best explained by the letter itself:—

Amherst, (*Mass.*,) October 7, 1835.

Philip Schuyler, Esq.

Sir: Yours of the 17th ult., requesting me to give you a detailed account of the battle of Saratoga, surrender of Gen. Burgoyne, &c., was duly received.

When I left home on a visit to my friend Frost, at Union village, it was my intention to have visited the ground on which the army of Gen. Burgoyne was met, and compelled to surrender. But the absence of Mr. Frost prevented. Had I known, however, that a descendant of that venerable patriot and brave commander, Gen. Schuyler, was living on the ground, I should have found means to pay him my respects.

General Gates, indeed, obtained the honour of capturing Burgoyne and his army; but let me tell you, sir, that it was more through the wise and prudent counsels of your brave and distinguished ancestor, and the energy and intrepidity of Generals Lincoln and Arnold, than through the ability and foresight of Gates.

In my narrative, I shall confine myself to what transpired from the 7th to the 17th October, 1777, both days included. This will necessarily lead me to correct the statement of Gen. Wilkinson, and a Mr. Buel in your neighbourhood, respecting the fall of Gen. Frazier. By confounding the two actions of the 19th of September and 7th of October, neither of them is correctly described.

The action of the 19th of September commenced about ten o'clock, A. M., and continued during the day, each army alternately advancing and retiring. On that day, Col. Morgan posted a number of his riflemen to pick off the officers as they appeared out of the woods; but no such posting of riflemen occurred on the 7th October, Gen. Wilkinson to the contrary notwithstanding.

On the 7th of October, the American army was posted with their right wing resting on the North river, and their left extending on to Bemis's heights; Generals Nixon and Glover commanding on the right, Lincoln the centre, and Morgan and Larned the left. The British army, with its left resting on the river, was commanded by Philips; their centre by Gen. Redheisel, and the extreme right, extending to the heights was commanded by Lord Balcarras, where he was strongly fortified. Their light-troops were under the command of Gen. Frazier and Lieut. Auckland.

About one o'clock of this day, two signal guns were fired on the left of the British army, which indicated a movement. Our troops were immediately put under arms, and the lines manned. At this juncture, Gens. Lincoln and Arnold rode with great speed towards the enemy's lines. While they were absent, the picket guards on both sides were engaged near the river. In about half an hour, Generals Lincoln and Arnold returned to headquarters, where many of the officers collected to hear their report, Gen. Gates standing at the door.

Gen. Lincoln says: "Gen. Gates, the firing at the river is merely a feint; their object is your left. A strong force of 1500 men are marching circuitously to plant themselves on yonder height. That point must be defended, or your camp is in danger."

Gates replied: "I will send Morgan with his riflemen, and Dearbonr's Infantry."

Arnold says: "That is nothing; you must send a strong force." Gates replied: "Gen. Arnold, I have nothing for you to do; you have no business here." Arnold's reply was reproachful and severe.

Gen. Lincoln says: "You must send a strong force to support Morgan and Dearborn, at least three regiments."

Two regiments from Gen. Larned's brigade and one from Gen. Nixon's, were then ordered to that station, and to defend it at all hazards. Generals Lincoln and Arnold immediately left the encampment, and proceeded to the enemy's lines.

In a few minutes, Capt. Furnival's company of Artillery, in which I was lieutenant, was ordered to march towards the fire which had now opened upon our picket in front, the picket consisting of about three hundred men. While we were marching, the whole line, from the river up to our picket in front, was engaged. We advanced to a height of ground which brought the enemy in view, where we opened our fire. But the enemy's guns, eight in number, much heavier than ours, rendered our position untenable.

We then advanced into the line of infantry. Here Lieut. M'Lane joined me. In our front there was a field of corn, in which the Hessians were secreted. On our advancing towards the cornfield, a number of men rose up and fired upon us. M'Lane was severely wounded. While I was removing him from the field, the firing still continued without abatement.

During this time, a tremendous firing was heard on our left. We poured in upon them, our canister-shot as fast as possible, and the whole line from left to right, became warmly engaged. The smoke was very dense, and no movements could be seen, but as soon as it arose, our infantry appeared to be slowly retreating, and the Hessians slowly advancing, their officers urging them on with their hangers.

Just at this moment, an elderly man, with a long hunting gun, coming up, I said to him: "Daddy, the infantry mus'n't leave me—I shall be cut to pieces." He replied: "I'll give them another gun." The smoke then rising again, several officers, led by a general, appeared moving to the northward, in the rear of the Hessian line. The old man, at that instant, discharged his gun, and the general officer pitched forward on the neck of his horse, and instantly they all wheeled about, the old man observing: "I have killed that officer, let him be who he will." I replied: "You have, and it is a general

officer, and by his dress I believe it is Frazier." While they were turning about, three of their horses dropped down; but their further movements were then concealed by the smoke.

Here I will offer the reasons why I think this officer was Gen. Frazier, and that he was killed by the shot of this old man. In the first place, the distance, by actual measurement, was within the reach of a gun. For the next morning, a dispute arising about the distance, some contending that it was eight rods, and others fifteen, two respectable sergeants, both of whom have since been generals in the militia of Massachusetts, were selected to decide the dispute by pacing the ground. They did so, and found the distance, from the stump where the old man stood to the spot where the horses fell, just twelve rods. In the next place, the officer was shot through the body from the left to the right, as was afterward ascertained. Now, from his relative position to the posted riflemen, he could not have been shot through in this direction, but they must have hit him in front. Moreover, the riflemen could not have seen him, on account of the smoke in which he was enveloped.

The troops continuing warmly engaged, Col. Johnson's regiment came up, threw in a heavy fire, and compelled the Hessians to retreat. Upon this, we advanced with a shout of victory. At the same time Auckland's corps gave way.

We proceeded but a short distance before we came upon four pieces of brass cannon, closely surrounded by the dead and dying; at a few yards farther, we came upon two more. Advancing a little farther, we were met by a fire from the British infantry, which proved very fatal to one of Col. Johnson's companies, in which one sergeant, one corporal, and fourteen privates, were killed and about twenty were wounded.

They advanced with a quick step, firing as they came on. We returned them a brisk fire of canister-shot, not allowing ourselves even to sponge our pieces. In a short time, they ceased firing, and advanced upon us with trailed arms. At this juncture, Arnold came up with a part of Brooks's regiment, and gave them a most deadly fire, which soon caused them to face about, and retreat with a quicker step than they advanced.

The fire had principally ceased on our left, but was brisk in front and on the right. At this moment, Arnold says to Col. Brooks, (late governour of Massachusetts): "Let us attack Balcarras's works." Brooks replied: "No. Lord Auckland's detachment has retired there; we can't carry them."—"Well then, let us attack the Hessian lines." Brooks replied: "With all my heart." We all wheeled to the right, and advanced. No fire was received, except from the cannon, until we got within about eight rods, when we received a tremendous fire from the whole line. But few of our men, however, fell. Still advancing, we received a second fire, in which a few men fell, and Gen. Arnold's horse fell under him, and he himself was wounded. He cried out: "Rush on, my brave boys!" After receiving the third fire, Brooks mounted their works, swung his sword, and the men rushed into their works. When we entered the works, we found Col. Bremen dead, surrounded by a number of his companions, dead or wounded. We pursued them slowly, the fire, in the meantime, decreasing. Nightfall now put an end to this day's bloody contest. During the day, we had taken eight cannon, and broken the centre of the enemy's lines.

We were ordered to rest, until relieved from the camps. The gloom of the night, the groans and shrieks of the wounded and dying, and the horrours of the whole scene baffle all description.

Under cover of this night, (the seventh,) the British army changed their position, so that it became necessary to reconnoitre the ground. While Gen. Lincoln was doing this, he was severely wounded, so that his active services were lost to the army, during that campaign. A heavy rain commenced about eleven o'clock, which continued without abatement till the morning of the ninth. In this time, information came that Gen. Burgoyne had removed his troops to Saratoga. At nine o'clock, A. M., of October eighth, Capt. Furnival received orders to march to the river, to cross the floating bridge, and repair to the fording place, opposite Saratoga, where we arrived at dusk. There we found Gen. Bailey, of New Hampshire, with about nine hundred men, erecting a long range of fires, to indicate the presence of a large army. The British troops had covered the opposite heights with their fires.

In the early part of the evening, Col. Mosely arrived with his regiment of Massachusetts militia, when our company was directed by Gen. Bailey to make a show of our field-pieces at the river. We soon extinguished their lights. We were then ordered to pass the Battenkill river, and erect works there during the night. In the morning, we perceived a number of officers on the stairs, and on the east side of the house, on the hill, a little north of the Battenkill river, apparently surveying our situation and works.

My captain being sick at the time, I levelled our guns, and with such effect as to disperse them. We took the house to be their headquarters. We continued our fire till a nine or twelve pounder was brought to bear upon us, and rendered our works useless. Next we were ordered in haste to Fort Edward, to defend the fording place. Colonel Mosely's regiment accompanied us. Some slight works were thrown up by us; while thus employed, a number of British officers appeared on the opposite side of the river. We endeavoured to salute them according to their rank. They soon disappeared.

During this day, (the tenth,) we captured fifty Indians, and a large number of Canadians and Tories. We remained at Fort Edward till the morning of the thirteenth. Being then informed of the armistice which had been agreed upon, we were ordered to return to our position on the Battenkill, and repair our works. Here we remained till the morning of the seventeenth, when we received orders to repair to Gen. Gates's headquarters on the west side of the river.

As we passed along, we saw the British army piling (not stacking) their arms; the piles of arms extending from Schuyler's creek northward nearly to the house on the hill beforementioned. The range of piles ran along the ground west of the road then travelled, and east of the canal, as, I am informed, it now runs.

Just below the island we passed the river, and came to Gen. Gates's markee, situated on a level piece of ground, from a hundred and thirty to a hundred and fifty rods south of Schuyler's creek. A little south and west of this, there is a rising ground, on which our army was posted, in order to appear to the best advantage. A part of it was also advantageously drawn up on the east side of the river. About noon on the seventeenth, Gen. Burgoyne, with a number of his officers, rode up near to the markee in front of which Gen. Gates was sitting, attended by many of his officers. The sides of the markee were rolled up, so that all that was transacted might be seen. Gen. Burgoyne dismounted and approached Gen. Gates, who rose and stepped forward to meet him. Gen. Burgoyne then delivered up his sword to Gen. Gates, who received it in his left hand, at the same time extending his right hand to take the right hand of Gen. Burgoyne.

After a few minutes' conversation, Gen. Gates returned the sword to Gen. Burgoyne, who received it in the most graceful and gentlemanly manner. The rest of Burgoyne's officers then delivered up their swords, and had them restored to them likewise. They then all repaired to the table and were seated; and while dining, the prisoners were passing by.

After they had all passed by, a number of us went in search of a gun which was upon a carriage the day previous to the seventeenth, near what was called the Hessian burying-ground. But the tracks of the carriage were so confused, and the stench from the dead bodies was so offensive, that the search was discontinued.

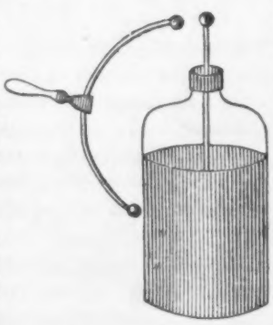
Thus I have replied to your inquiries, as far as my recollection extends. I should be very happy to meet you, and spend a day or two in walking over the battle-ground, and to enter into other particulars concerning that engagement, which, however, are of minor importance. With much esteem,

I am, dear sir, yours,

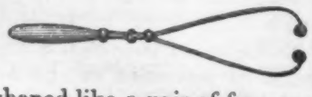
E. Mattoon.

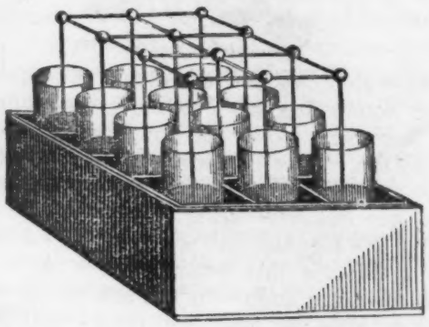
ELECTRICITY.

A Leyden jar may be thus prepared: Take a glass jar, with a wide mouth, as in the figure, coat it inside and out, to within two or three inches of the top with tin foil, fastened on with gum water. Fit a stopple of baked wood, or of cork covered with sealing-wax, to the mouth of the jar, and through the centre of the stopple pass a brass wire, whose lower extremity is terminated by a number of other wires or a chain, each of which touches the inside coating, while its upper extremity rises an inch or two above the mouth of the jar, surmounted by a brass ball.

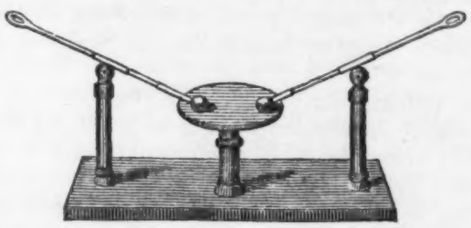


For the purpose of discharging these jars, an instrument of brass called a *discharging rod*, is necessary. It is shaped like a pair of forceps, the extremities of which have brass knobs; and is furnished with a moveable joint at the handle, which is of glass, to prevent the shock being communicated to the operator. It is applied as is seen above.



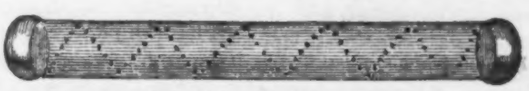


To increase the force of the Leyden vial, or jar, a number of them are arranged in a box, connected by means of brass rods; the box itself is lined with tin foil; this is denominated a *battery*, and the electrick explosion is strong in proportion to the number and size of the jars. When the number of jars is considerable, animals may be killed, metal wires be melted, and other effects be produced by the discharge of the battery, analogous to those of lightning.

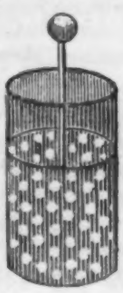


The universal discharger consists of a mahogany board fourteen inches long, and four wide, with a small table, standing on a glass leg in the centre; also two wires sliding in spring tubes, and mounted on universal joints, are fixed on the top of two glass pillars, cemented to the board at equal distances from the centre.

Besides the indispensable instruments, others may be constructed for the purpose of making amusing experiments; a few of them are as follow:—



For procuring what is denominated the diamond necklace, take a tube of glass, and paste a narrow slip of tin foil round it, in a spiral direction, then with a penknife cut small pieces from the foil, at equal distances: when this tube is presented to an electrified conductor, a brilliant line of light will surround it in the direction of the foil.



Still more amusing effects may be produced by coating a Leyden vial with round or square bits of tin foil, placed at regular distances; and by pasting lines of tin foil on a piece of glass, and then with a penknife cutting intervals, so as to form letters, a word in luminous characters may be produced.

Many other electrical instruments for the purpose of making interesting and amusing experiments might be described, would our limits allow,—such as the artificial spider, &c. However, for the further information and amusement of our readers, we subjoin a few *electrical experiments*.

To charge the Leyden vial, place it on a table, or any other conductor that communicates with the earth, with the brass knob near the ball of the conductor; on turning the machine, sparks will pass from the conductor to the jar, until the latter is charged, when no more will be visible. To discharge it, take the discharging rod, open the forceps, and apply one knob to the outside coating, and the other to the ball of the jar; an explosion will instantly ensue.

In charging a battery, an explosion will sometimes take place spontaneously, to prevent which, paste a slip of writing paper, about an inch wide, round the inside of each jar, immediately above the coating. An electrometer should be placed on the battery, while charging, to indicate the progress of the operation.

To use the universal discharger, place the body through which the discharge is to be made, on the little table; bring the sliding wires in contact with its opposite sides; then connect one of them with the outside of a charged jar, or battery, and the other with the discharging rod, and the charge will be instantly sent through it.

By means of a pointed wire, attached to the machine, electrify the inside of a dry glass tumbler; place some pith balls on the table, and cover them with the tumbler, and they will instantly commence a rapid dancing motion, alternately touching the glass and the table.

To render opaque objects transparent by the electrick fluid, place two wires in a straight line, with their ends about three fourths of an inch asunder; over the interval place a thick piece of pipeclay, of pumice stone, or an egg; on passing the charge from one wire to another, these opaque substances will appear perfectly transparent.

The effect of electricity in producing the divergence of tufts of hair is sufficiently amusing. This may be shown by placing a person on a stool with glass legs, so that he may be perfectly insulated, and making him hold in his hand a brass rod, the other end of which touches the positive conductor; then on turning the machine, the hairs of the head will diverge in all directions,

"Like quills upon the fretful porcupine."

The same effect may be more perfectly exhibited by means of an artificial head of small dimensions, with hair glued to it, and fixed on a brass wire, which is to be placed on the conductor.

Insert two wires in opposite directions in a small melon, orange, or apple, so that their points shall come near each other; electrify the wires, and the fruit will appear transparent. All these experiments, and others dependant on electrick light, must be performed in a darkened room.

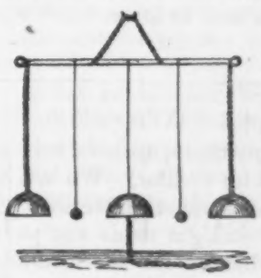
To fire an inflammable substance by the electrick spark, put a small quantity of rectified spirit of wine into a spoon, and let the person who holds it stand on the insulated stool with his other hand on the prime conductor; then, while the machine is turning, let the person put his finger on a metal rod, near the spirit, and it will be instantly inflamed.

Place a card against the coating of a charged jar; then apply one knob of the discharging rod to the card, and the other to the ball of the jar, a discharge will take place, and the card will be found pierced quite through by the electrick fluid.

Lay a small chain upon a piece of white paper, in a darkened room, send the shock of a Leyden vial through it, and the chain will appear beautifully illuminated, with a kind of radiation at every joining; and the paper will have a blackish tinge at every joint of the chain.

Place a strip of gold or silver leaf on white paper, and pass a strong charge through it, the metal will disappear with a bright flash, and the paper will be stained with a purple or gray colour.

These are a few of the numerous experiments which may be performed by means of the electrical apparatus; and they show the wonderful properties of that subtle fluid, which pervades all bodies, and which is identified with the lightning, and with those brilliant meteors so common in the northern regions, called the *aurora borealis*.

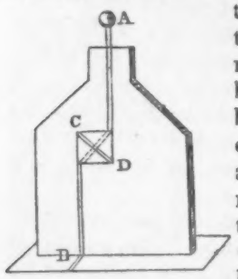


The electrical bells consist of a number of small bells, as represented in the annexed figure, suspended from the conductor by brass chains, with a ball to act as a clapper hanging by a silk thread, between every two bells, one of them being connected with the table, so that its electricity is dissipated as fast as it is received. Thus the insulated ball will vibrate backward and forward, alternately striking the electrified and non-electrified bell, when the machine is put in motion.

The dancing figures, as shown in the margin, may be cut out of writing paper; and such figures, or any other light bodies, placed on a brass plate B, connected with the ground, and having another brass plate A, suspended at a little distance above it, from the prime conductor, will rapidly dance when the upper plate is electrified. The effect is obviously caused by the figures being attracted by the electrified plate and immediately after repelled; and being robbed of their acquired electricity by the lower or non-electrified plate, they rise again to receive a new charge, and thus the dance is continued.

The manner in which buildings are injured when struck by lightning, or the accumulated electricity of the atmosphere, may be instructively elucidated

by means of the apparatus delineated in the following figure, called a thunder house. It consists of a triangular piece of mahogany, which may represent one end of a house or barn: in the centre a small square piece is fitted loosely into a corresponding cavity; and diagonally across the moveable square passes a brass wire, C D. When this instrument is used, the brass knob A must be brought near to the knob of a charged jar, with the outside of which is connected a chain attached to the brass wire B; thus the jar will be discharged, and its electricity will pass through the knob and wire A to B, but the interruption occasioned by the position of the square in the centre will cause it to be driven forcibly from its place. If, however, its position be altered, so that the wire C D may communicate with A and B, forming a part of the same electrick circuit, the fluid will pass through the wire C D without displacing the square. It is thus that the highest point or points of a building being struck by lightning, if the passage of the electrick fluid be interrupted, by non-conducting or imperfectly conducting bodies, they may be displaced with violence, injured, or destroyed; but if the electrick fluid can pass readily through a good conductor, as a thick metal rod, it will be conveyed into the earth without hazard of the safety of the building. Hence the utility of conductors affixed to towers and other lofty edifices.



THE HYDROPHILUS, OR WATER FIEND.

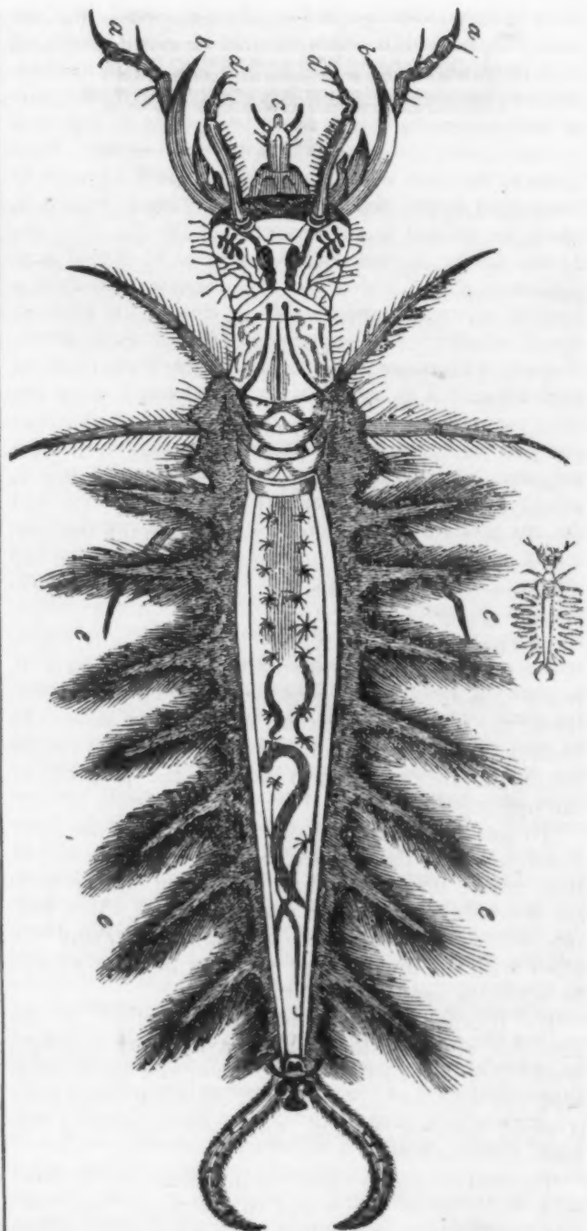
A STAGNANT pool, or nettle-margined ditch, are objects usually regarded with dislike. We are educated to avoid them, and fashion prescribes the uninstructive monotony of straight roads and paved streets, as more becoming haunts for the insatiable intelligence of man. But why should we suffer limitations where nature prescribes none? Let us forget all prejudices, and see whether a "*pond*" is not capable of adding greatly to our information and amusement.

It swarms with life! Upon its surface hundreds of different species of insects are swimming. Water-spiders, water-measurers, water-bugs, and water-beetles, with numerous species of two and four winged flies, are engaged in an extraordinary dance; and the most complicated figures are continually evolved, with all the ease and celerity of long practice.

At the bottom of the pond, a great variety of beetle-grubs, gnat-maggots, blood-worms, caddis-worms, &c., are burrowing in the soil, excavating galleries, building houses, laying snares for their prey, together with all those "ceaseless actions" by which life is perpetuated.

Midway in the water, the diving-spider, suspended from a gem of air, pursues his sub-marine voyage; several brilliantly coloured mites, with the larvæ of numerous water-beetles, are swimming rapidly about; each one impelled, by unerring instinct, to the most exact discharge of its destiny.

Here, then, is, indeed, a microcosm—a little world of life—thousands of creatures busily engaged in the most interesting operations, and all within the space



[Larva of the Great Hydrophilus: Natural Size, and Magnified.]

of a few feet. No irregularities disturb the peaceful tenour of their ways; no sound betokens the intensity of their pursuits; but all is so quiet, that "not a sound lives betwixt them and silence." The very calm invites us to meditation. Let us then catch one of those singular creatures, which is in such rapid pursuit of an insect double its own size; it is the larva of the great hydrophilus, and is called the water-fiend.

This insect, of which the cut is a representation, is of a fierce disposition, with a strong carnivorous appetite; it is armed for this purpose with very deadly weapons, which it uses with the most destructive ferocity.

Messrs. Kirby and Spence, speaking of the family to which it belongs, have the following interesting account of its nest, which may be found in almost any pond during the month of May. "In form," say they, "it somewhat resembles a turnip when reserved; since it consists of a pouch of the shape of an oblate spheroid, the great diameter of which is

three quarters of an inch; and the small, half an inch; from which rises a curved horn, about an inch long, and terminating in a point. The animal, (then in the beetle state,) "is furnished with a pair of anal spinners, which move from right to left, and up and down, with much quickness and agility; from these spinners a white and glutinous fluid appears to issue, that forms the nest or egg pouch, which it takes the animal three hours to construct. The exteriour tissue is produced by a kind of liquid and glutinous paste, which, by desiccation, becomes a flexible covering impermeable to water; the second, which envelops the eggs, is a kind of light down, of great whiteness, that keeps them from injuring each other. The tissue of the horn is of a silky nature, porous and shining, and greatly resembling the cocoons of butterflies. At its base is the opening prepared for the egress of the larvæ when hatched, which is closed by some threads, that, by means of the air confined in the cocoon, or pouch, hinder the water from getting in. This nest does not float at liberty in the water till after the eggs are hatched, the parent animal always attaching it to some plant. By means of this unusual process for a beetle, which this insect is instructed by Providence thus to perfect, the precious contents of its little ark are secured from the action of the element, which is to be the theatre of their first state of existence, from the voracity of their enemies, until the included eggs are hatched, and emerge from their curious cradle."

The newly-hatched larva grows rapidly, and in accordance with a law which has been observed to prevail among carnivorous animals, the head, with the jaws and its appendages, are developed more rapidly than the other members. All its parts are so transparent, that the circulation of the vital fluids can, with the microscope, be easily perceived, as well as the motions of the principal viscera. In the full-grown larva, its body is of an oblong spindle shape, and carries from its sides seven pairs of oars (*e*), with which it paddles its way through the water with great speed. This of itself is well worthy of close observation, and should be viewed in connexion with instruments for similar purposes in other insects. The subject is varied and interesting—"some move by the same motion of the legs as they use in walking, or by stroke, as in swimming; others, for this purpose, employ as oars certain plates, which terminate their tails, or, as in the present case, fringe the sides of the body; others, again, swim like fish, with an equal motion; some move by the force of the water which they spirt from their arms; and others again swim about in cases." But to return to our description: the larva has six legs, well armed with claws, a large head, strong jointed antennæ, and very powerful jaws. The animal is generally of a yellowish brown colour; and in length about an inch and a half.

Dr. Goring, who minutely examined this creature, and to whom we are chiefly indebted for our figure, states, that in the capture of its prey, considerable instinct is exhibited. He says that if its victim should have any one part more vulnerable than another, that part is always first attacked. The usual mode of procedure is as follows: The Hydrophilus, swimming horizontally, turns up his head at right angles with his body, and surveys the space above him: when he perceives his prey, he rises gradually beneath it, and seizes it with the feelers (*a*), and grasping it firmly, pierces it to death with his jaws (*b*); he then brings it to the point of the sucker (*c*), and speedily exhausts it of its juices. But should the insect attacked be covered with a shell or hard skin, so as to make the abstraction of nutriment difficult, the Hydrophilus then crushes it between the inner scizzor-like jaws(*d*), and sucks it at leisure.

After it has laid in this state a considerable time, it bores a hole in the earth at the bottom of the pond, and buries itself, and here it changes into the chrysalis or pupa state. In this process, the skin upon its back splits, the head, legs, &c., fall off, and the pupa emerges. After a while; it undergoes its final metamorphosis, and comes forth in the form of a perfect beetle.

These beetles are amphibious, and live occasionally both in water and on land. The author of "Elements of Natural History," says they may be seen in ponds during the summer, frequently rising to the surface for fresh air; they swim well, and when laid on their backs restore themselves by whirling round. They rest in the shade, keep in the water during the day, come abroad in the evening, and are sometimes found sitting on the plants by the edge; they fly by night, and after having been long out of the water, they cannot dive but with difficulty

In conclusion, let it not be supposed by any one that the destructive appetite of this animal in any way disturbs the happiness of its companions. They know nothing of death, and when their appointed hour comes, they pass quietly and in a moment, into its oblivious embrace. Even allowing them to possess fear, still they may be happy, for it is guilt only that makes fear painful, and of that they are destitute. Indeed, fear of their enemies may constitute part of their pleasures, for as Paley has observed, the chief employment of the hare is to conceal herself from her enemies, in that she finds enjoyment, and although no creature is so hunted, none is more happy.

SONG OF THE FIELD.—By G. W. Patten, Lt. U. S. A.

Roll, roll! how gladly swell the distant notes
From where on high yon starry pennon floats!
Roll, roll! on gorgeously they come,
With plumes low drooping on their winding way,
And banners glancing in the sun's bright ray.
What do we there, my merry comrades, say?—
We beat the gathering drum.
'Tis this which gives to mirth a lighter tone,
To the young warrior's cheek a deeper glow,
When stretched upon his grassy couch alone
It steals upon his ear; this martial call
Prompts him to dream of merry war with all
Its pageantry and show.

Roll, roll! what is it that ye beat?—
We sound the *charge*—on with the courser fleet—
Where, amid columns red, war's eagles fly
We swear to do or die.
'Tis this which feeds the fires of Fame with breath
Which steels the soldier's heart to deeds of death:
And when his hand
Fatigued with slaughter pauses o'er the slain,
'Tis this which prompts him madly once again
To seize the bloody brand.

Roll, roll! Brothers, what do ye here
Slowly and sadly as ye pass along
With your dull march and low funereal song?
Comrade, we bear a bier—
I saw him fall:
And as beneath his steed he lay, me thought
(Strange that such weakly feelings in me wrought)
That had he died beneath his native skies,
Perchance some gentle bride had closed his eyes,
And wept beside his pall.

New York American.

INDIAN FEASTS.

Among the Indians, the man who gives many feasts, or who, in the language of their songs, "causes the people to walk about continually," is accounted great. In times, therefore, when game is abundant, feasts are multiplied. Before the whites introduced among them intoxicating drinks, it is probable the assembling together for feasts, was their principal and most favourite source of excitement in times of peace, and comparative inactivity. They have several kinds of feasts:—

First. *Metai-we-koon-de-win*—Medicine feast, or that feasting which forms a part of their great religious ceremony, the Metai. This is under the direction of some old men, who are called chiefs for the Metai,* and the initiated only are admitted. The guests are invited by a Me-zhin-no-way, or chief's man of business, who delivers to each of the guests a small stick. In the south, they use small pieces of cane; in the north, quills are sometimes substituted, which are died and kept for the purpose. No verbal message is delivered with this token. The numerous preparatory measures, and the various steps in the performance of this ceremony, need not be here detailed.† Dogs are always chosen for the feast, from a belief, that as they are more sagacious and useful to men, so they will be more acceptable to their divinities, than any other animals. They believe that the food they eat, at this and some other of their feasts, ascends, though in a form invisible to them, to the Great Spirit. Beside the songs sang on occasion of this feast, they have numerous exhortations from the old men. Among much of unintelligible allusion, and ridiculous boasting, these addresses contain some moral precepts and exhortations, intermixed with their traditionary notions concerning Na-na-bush, and other personages of their mythology. Whenever the name of the Great Spirit is uttered by the speaker, all the audience, who, if they remain sober, seemed wrapped in the deepest attention, respond to it by the interjection, Kwa-ho-ho-ho-ho-ho! the first syllable being uttered in a quick and loud tone, and each of the additional syllables fainter and quicker, until it ceases to be heard. They say the speaker touches the Great Spirit, when he mentions the name, and the effect on the audience may be compared to a blow on a tense string, which vibrates shorter and shorter until it is restored to rest. This peculiar interjection is also used by the Ottawwaws, when they *blow* or *shoot* with their medicine skins, at the persons to be initiated.

Second. *Wain-je-tah We-koon-de-win*—Feast called for by dreams. Feasts of this kind may be held at any time, and no particular qualifications are necessary in the entertainer or his guests. The word Wain-je-tah means common, or true, as they often use it in connexion with the names of plants or animals, as Wain-je-tah O-muk-kuk-ke, means a right or proper toad, in distinction from a tree-frog, or a lizard.

Third. *Ween-dah-was-so-win*—Feast of giving names. These are had principally on occasion of giving names to children, and the guests are expected to eat all, be it more or less, that is put into their dish by the entertainer. The reason they assign for requiring, at this and several other feasts, all that has been cooked to be eaten, is, apparently, very insufficient; namely, that they do so in imitation of hawks, and some other birds of prey, who never return a second time to that they have killed.

Fourth. *Menis-se-no We-koon-de-win*—War-feast. These feasts are made before starting, or on the way towards the enemy's country. Two, four, eight, or twelve men, may be called, but by no means an odd number. The whole animal, whether deer, bear, or moose, or whatever it may be, is cooked, and they are expected to eat it all; and, if it is in their power, they have a large bowl of bear's grease standing by, which they drink in place of water. Notwithstanding that a man who fails to eat all his portion, is liable to the ridicule of his more gormandizing companions, it frequently happens that some of them are compelled to make a present of tobacco to their entertainer, and beg him to permit that they may not eat all he has given them. In this case, and when there is no one of the company willing to eat it for him, some one is called from without. In every part of this feast, when it is made after the warriours leave home, they take care that *no bone of the animal shall be broken;* but after stripping the flesh from them, they are carefully tied up, and hung upon a tree. The reason they assign for preserving, in this feast, the bones of the victim unbroken, is, that thus they may signify to the Great Spirit, their desire to return home to their own country, with their bones uninjured.

Fifth. *Gitche-we-koon-de-win*—The great feast. This is a feast of high pretensions, which few men, in any band, and only those of principal authority, can venture to make. The animal is cooked entire, as far as they are able to do it. This kind is sometimes called Mez-ziz-a-kwa-win.

Sixth. *Waw-bun-no We-koon-de-win*—Wawbeno feast. This, and the other mummeries of the Wawbeno, which is looked upon as a false and mischievous heresy, are now laid aside by most respectable Indians. These feasts were celebrated with much noise and disturbance; they were distinguished from all other feasts, by being held commonly in the night-time, and the showing off of many tricks with fire.

Seventh. *Je-bi Naw-ka-win*—Feast with the dead. This feast is eaten at the graves of their deceased friends. They kindle a fire, and each person, before he begins to eat, cuts off a small piece of meat, which he casts into the fire. The smoke and smell of this, they say, attracts the Je-bi to come and eat with them.

Eighth. *Che-bah-koo-che-ga-win*—Feast for his medicine. During one whole day in spring, and another in autumn, every good hunter spreads out the contents of his medicine-bag in the back part of

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* Some discussion has heretofore taken place concerning the existence of a priesthood among the Indians. A little inquiry will convince any one, that the medicine men are a set of crafty impostors, who subsist, in a great measure, by practising on their credulity; by selling them medicines, or charms, for ensuring success in hunting, for enticing the females, and for other purposes. When one of these has been so fortunate as to gain an ascendency over their superstitious and credulous minds, he sometimes sets up for a prophet, and claims intercourse with superiour and invisible beings.

† A copious account of the Medicine Dance, or Metai, as it exists among the Me-no-mo-nies, is contained in a manuscript paper, entitled, "Remarks on the Mythology of the Algonkins," &c., communicated to the New York Historical Society, in 1827, by the editor of this narrative.

his lodge, and feasts his neighbours, in honour of his medicine. This is considered a solemn and important feast, like that of the Metai.

Ninth. *O-skin-ne-ge-tah-ga-win*—Boy's feast.—This might be called the feast of the fruits, as it is made on occasion of a boy, or a young hunter, killing his first animal, of any particular kind. From the smallest bird, or a fish, to a moose, or buffalo, they are careful to observe it; and hence, these feasts are frequent and conducted with great hilarity.

Tanner.

[For the Family Magazine.]

THE PIASÂ.

AN INDIAN TRADITION OF ILLINOIS

No part of the United States, not even the highlands of the Hudson, can vie, in wild and romantick scenery, with the bluffs of Illinois. On one side of the river, often at the water's edge, a perpendicular wall of rock rises to the height of some hundred feet. Generally on the opposite shore is a level bottom or prairie, of several miles in width, extending to a similar bluff that runs parallel with the river.

One of these ranges commences at Alton, and extends with few intervals for many miles along the left bank of the Illinois. In descending the river to Alton, the traveller will observe between that town and the mouth of the Illinois, a narrow ravine through which a small stream discharges its waters into the Mississippi. That stream is the Piasâ. Its name is Indian, and signifies in the language of the Illini, "THE BIRD THAT DEVOURS MEN." Near the mouth of that stream, on the smooth and perpendicular face of the bluff, at an elevation which no human art can reach, is cut the figure of an enormous bird, with its wings extended. The bird which this figure represents was called by the Indians, the Piasâ, and from this is derived the name of the stream.

The tradition of the Piasâ is still current among all the tribes of the Upper Mississippi, and those who have inhabited the valley of the Illinois, and is briefly this: "Many thousand moons before the arrival of the pale faces, when the great magalonyx and mastodon, whose bones are now dug up, were still living in this land of the green prairies, there existed a bird of such dimensions that he could easily carry off, in his talons, a full grown deer. Having obtained a taste of human flesh, from that time he would prey upon nothing else. He was artful as he was powerful; would dart suddenly and unexpectedly upon an Indian, bear him off into one of the caves in the bluff, and devour him. Hundreds of warriours attempted for years to destroy him, but without success. Whole villages were nearly depopulated, and consternation spread through all the tribes of the Illini. At length, Ouatogá, a chief, whose fame as a warriour extended even beyond the great lakes, separating himself from the rest of his tribe, fasted in solitude for the space of a whole moon, and prayed to the Great Spirit, the Master of life, that he would protect his children from the Piasâ. On the last night of his fast, the Great Spirit appeared to Ouatogá in a dream, and directed him to select twenty of his warriours, each armed with a a bow and a poisoned arrow, and conceal them in a designated spot. Near the place of their concealment, another warriour was to stand in open view, as a victim for the Piasâ, which they must shoot the instant that he pounced upon his prey. When the chief awoke in the morning, he thanked the Great Spirit, and returning to his tribe, told them his dream. The warriours were quickly selected and placed in ambush as directed. Ouatogá offered himself as the victim. He was willing to die for his tribe. Placing himself in open view of the bluff, he soon saw the Piasâ perched on the cliff eying his prey. Ouatogá drew up his manly form to its utmost height, and planting his feet firmly upon the earth, began to chant the death-song of a warriour. A moment after, the Piasâ rose into the air and, swift as the thunderbolt, darted down upon the chief. Scarcely had he reached his victim, when every bow was sprung, and every arrow sent, to the feather, into his body. The Piasâ uttered a wild, fearful scream, that resounded far over the opposite side of the river, and expired. Ouatogá was safe. Not an arrow, nor even the talons of the bird, had touched him. The Master of life in admiration of the generous deed of Ouatogá had held over him an invisible shield. In memory of this event, the image of the Piasâ was engraved on the face of the bluff. Such is the Indian tradition. Of course I do not vouch for its truth. This much, however, is certain; the figure of a large bird cut into the solid rock, is still there, and at a height that is perfectly inaccessible. How and for what purpose it was made, I leave for others to determine; even at this day, an Indian never passes that spot in his canoe without firing his gun at the figure of the bird. The marks of balls on the rock are almost innumerable.

Near the close of March of the present year, I was induced to visit the bluffs below the mouth of the Illinois and above that of the Piasâ. My curiosity was principally directed to the examination of a cave connected with the above traditions, as one of those to which the bird had carried his human victims. Preceded by an intelligent guide who carried a spade, I set out on my excursion. The cave was extremely difficult of access, and at one point of our progress I stood at an elevation of more than one hundred and fifty feet on the face of the bluff, with barely room to sustain one foot. The unbroken wall towered above me, while below was the river. After a long and perilous clambering we reached the cave which was about fifty feet above the surface of the river. By the aid of a long pole, placed on the projecting rock and the upper end touching the mouth of the cave, we succeeded in entering it. Nothing could be more impressive than the view from the entrance of this cavern. The Mississippi was rolling in silent grandeur beneath us: high over our heads a single cedar hung its branches over the cliff, on the blasted top of which was seated a bald eagle. No other sound or sign of life was near us. A sabbath stillness rested upon the scene. Not a cloud was in the heavens; not a breath of air was stirring. The broad Mississippi lay before us, calm and smooth, as a lake. The landscape presented the same wild aspect as it did before it had yet met the eye of the white man.

The roof of the cavern was vaulted, the top of which was hardly less than twenty-five feet in height. The shape of the cave was irregular, but so far as I could judge, the bottom would average

twenty by thirty feet. The floor of this cave throughout its whole extent was a mass of human bones. Sculls and other bones were mingled together in the utmost confusion. To what depth they extended I am unable to decide, but we dug to the depth of three or four feet in every quarter of the cavern and still we found only bones. The remains of thousands must have been deposited here: How, and by whom, and for what purpose, it is impossible even to conjecture. J. R.

[For the Family Magazine.]

ARABIAN HORSES.

THE general word used by the Arabs to designate the horse is *khayl:* they distinguish five different races of this animal, all of which originated from Nejed; and the purity of their blood is carefully preserved. Some authors ascribe their origin to a famous courser termed Mashour, belonging to a chief, in the the earliest ages of paganism. Others assert that they are descended from the favourite stud of the prophet. Be this as it may, they have no distinguishing marks, but are recognised simply by their pedigrees which are drawn up with the utmost care, and which are always shown when a horse is offered for sale.

The fraternal affection of the Arab for his horse is founded not only on their utility, but on an old opinion that the sentiments of horses are generous and noble, and that they are more intelligent than other animals. The Arabs say generally, that "the horse is next to man in the scale of animals; to raise them is a noble occupation, to ride them is a

[An Arabian Horse.]

delicious amusement, and to take care of them is the best occupation." They add, in the words of the prophet, "every grain of barley given to a horse is one sin pardoned."

The constitution of the Arabian horses, is generally delicate, but they are accustomed to the fatigue of long journeys, they are active and remarkably fleet, and so mild and docile that they are manageable by females or children. They are neither bitted nor bridled until they are four years old, and are commonly fed on camel's milk.

The different colours of the Arabian horses are a bright bay, chestnut, white, gray, mottled gray, and bluish gray. The black horses are unknown in Arabia, but they are found in Persia, Tartary, and in Turkey. The horses of the race of *Nejed*, are commonly regarded as the most noble; those of *Hejjaz*, as the most beautiful; those of *Yemen*, as the strongest; those of *Mesopotamia*, as the gentlest; those of *Egypt*, as the most lively; those of *Barbary*, as the most productive; those of *Persia*, and *Kurdestan*, as best adapted for war; and those of *Syria*, as having the finest colours.

AMERICAN LANDSCAPE.

The Allegany mountains present numerous picturesque views; sometimes, the cliffs rise like the turrets of a ruined castle, and when the shades of twilight cast a gentle gloom over the scene, one may almost imagine himself near the scenes of some of the events described in romance—and again, the rocks rise perpendicularly like the walls of some giant fortress, and imagination busies herself in peopling them, with the creatures of active fancy. In winter, these solitudes are dreary enough—occasionally a traveller may be seen treading his lonely way over them, but generally speaking, the deer, which turn up the snow in search of food, are the only beings to disturb the solitude. In summer, however, the case is far otherwise. The rocks and crags teem with the productions of vegetable life. A late writer remarks:—

We had heard of the French Broad river, a tributary of the Tennessee, as singularly romantick in its passage among the Allegany mountains; and the ride along its banks had been represented to us as very fatiguing and somewhat dangerous, so that when summoned to take our places in the stage-coach, we felt an unusual degree of excitement. It was two in the morning, very dark, and the coach crowded.

As day approached, I perceived that beyond the row of trees and shrubs that bordered my side of the road, there seemed a deep precipice, and the murmur that had for an hour risen behind this thick hedge, began to deepen into the dash and roar of waters. On turning an angle of the road we had our first view of the river, and for an hour I saw nothing but the river, for I felt that I could never be satisfied with watching its endless variety of motion. The whole course of the French Broad is over a bed of rocks, and there is a body of water sufficient to give grandeur to the rapidity of its descent. During the thirty-six miles we followed it, the fall is thirteen hundred feet, and its whole surface is a sheet of foam, from its impetuosity and the obstacles it meets: masses of white and pale-gray rock, in every variety of form, stand up in the channel and brave the angry dashing of the waters they oppose. Here, after one leap of ten or twelve feet, the river keeps a comparatively tranquil course, over hidden rocks, till a group of green islands parts it into as many channels, and then suddenly reuniting the whole combined force, it is bent upon a ledge of rocks that extends halfway from shore to shore. Here an elevation from one side turns the current into a curve, and the next moment we have a dashing wave breaking beside us. I fixed my eyes on a little flake of foam that was pursuing its course alone. I followed it as it was borne along by the winding current. I saw it safely carried down the rapids, around high rocks, till it danced round and round the verge of a whirlpool, and left it there at play with a withered leaf, and a broken twig. Was it not like the beings who forget the urgent errand of their immortality among the trifles of time? I

[A Company of Deer engaged in shovelling back the snow, in search of food.]

saw a fallen tree that maintained its place by a hold on the bank, and amid this rush and confusion lay tranquilly intent on collecting what it might; straws, leaves and even drifted blossoms had fallen into its toils, and it would not let them go. Are there not beings, who like the trees are intent only on accumulating, and indifferent to the chances and changes of time, except as they add to their stores? I saw one long, low and fairy island, so covered with laurel flowers, mingled with green and graceful foliage, that I could have fancied one huge bouquet bound up and cast here to float along the tide. But my fancied and moralizings were interrupted by exclamations from my companions, and my own awakened sense, that in seeing all this beauty we were encountering some peril. The road we were passing over was entirely artificial—a wall of broken rocks lightly covered with earth, so very narrow that our wheels almost dipped in the water, and often carried so high from the river, that a deviation of a foot from the path would have been destruction. M— and all on her side of the coach, were exclaiming about the immense rocks that overhung the other side of the road, and my glimpses of them through the window realized something of their fearful grandeur, but after I was fully aware to the danger of the path, I could not keep my eyes from the brink. Our stranger ladies were groaning and expressing their fears, and one gentleman was holding forth on all that might happen. I questioned him about the road, and learned until the last eight years, there had been no outlet for the produce of East Tennessee, or inlet for the good things from abroad to the unhappy people imprisoned there; that a passage over the mountain was sometimes attempted, but it was death to men and horses; under this state of things, a company was incorporated to construct a road over a certain mountain and along the French Broad river, and succeeded after several years' labour and immense expenditure. Most of the foundation of the river road had been forced from the cliffs above by blasting, and that in places where the task seemed hopeless. He said it was already a very profitable undertaking, for the number of wagons passing over this turnpike every year was immense, and that without this road he would not give one cent for East Tennessee. He seemed a very sensible sort of man, but he ought not to have enlarged so on our danger, and pointed out every rock that stood loosely over our heads, and might fall very easily. We all tried to forget our fears, and there was enough of interest to help us. The water's edge was bordered with young willows, oaks, and tall trees of laurel in full bloom. The Rhododendron was not yet in flower, but it stood in heavy masses of green-pointed leaves.—I had no idea of such quantities, or of the height to which it grew. Many of the trees were fifteen or twenty feet in length.

The wet leaves often dashed in our faces, but we rather welcomed them, for we felt that the trees would be a slight barrier to our fall in case we should be jolted off the edge. The extreme loneliness of the road struck me as singular: now and then an overgrown toad hobbled off at the rattling of our wheels, and once, we saw a solitary fisherman, seated on a log so intent on his occupation that he did not raise his head to look at us. It did not surprise me to find no inhabitants where there was not a level spot for a house, but I was expecting and dreading an encounter with other travellers. I do not know what can be done in that case, for the road is too narrow to admit of vehicles passing, or even turning about. At last, we came to the breakfast house which stood in a niche apparently forced out of the rock. And here, owing to an important change in my situation to the opposite window of the coach, an entire revolution of my train of ideas commenced. The scene of danger from below was no longer forced upon me, and if I might have apprehended a greater danger from above, the fear was lost in the grandeur of the objects I beheld—rocks, massive ancient rocks, in every variety of form, and hue, and position. Here they towered hundreds of feet above our heads with their gray severity unrelieved by even a twig or a leaf. Here was a vast rock worn smooth and rounded by its descent from some high point above, resting now on some slight obstruction, ready to move on without a moment's warning. Here was a mass of rock worn into little fragments by the action of the elements, still retaining its show of solidity, but falling in a shower of pebbles at every touch. The arrangement of the strata of rocks varied at every step. Here stood a range which was almost as regularly perpendicular as columns, or as the volumes on the shelves of a library. Here they lay like the books that have fallen when two or three have been removed, and here again they were piled one above another, like the same books, reposing on a table. Under some of the largest rocks, and when they seemed to need the strongest support, yawned cavities large enough to have received stage and horses. Often the eye was refreshed by the rich green of the shrubbery, covering all the ruggedness of the cliffs and waving from the top. Bright wild flowers peeped from the rugged crevices and laughed at their security from all our attempts. One little crimson flower attracted our particular admiration, and for want of a better name, we called it the scarlet lichen. There were many beautiful little streams that came leaping from the rocks above, and dashed over the narrow road into the river. In one spot we traced the little stream from its first trickling descent, down five or six successive falls, till it was received in a natural basin and afforded a delicious draught for us and the horses. I must not forget one or two attempts to take agricultural advantage of a little softening down of ruggedness of the mountain side. The scattered grain stood up among young oaks and cedars, as if it were frightened at its own temerity. At last, after being successively delighted and alarmed for many hours, we crossed the roaring river on a frail bridge, to look for a few moments at the warm spring, which is remarkable for nothing but its temperature. We recrossed the river and took the narrow path once more, but instead of being simply as dangerous as it was before, it now began to ascend the cliff only wide enough for the wheels, so that a foot of deviation would have carried us over the brink. The road rose gradually till the cliff above diminished into nothing compared with the precipice below, and our hearts seemed for a few moments to stop beating. We were moving along the verge of a precipice of more than three hundred feet. The river was roaring and foaming

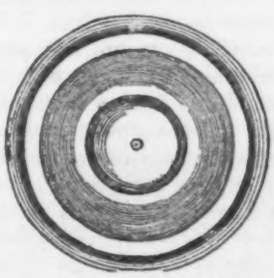
at its foot. To add to the terrours of the place, the road had been much washed, and shelved fearfully. In one spot, the outer wheel entered a deep rut: the whole body of the coach hung over the precipice, the inner wheels were raised from the ground; one inch more of elevation and we were gone. But the dangerous pass was soon accomplished and we rode on in comparative tranquillity.

Southern Rose.

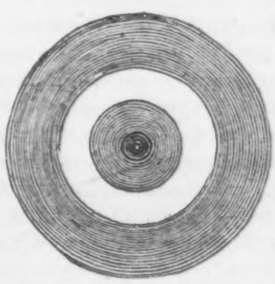
AMERICAN ANTIQUITIES.

In our last number we gave a description and cut of some singular remains discovered at Fall river. To enable our readers to compare them with those found at the west, we subjoin a description and cuts by Dr. S. P. Hildreth of Marietta, of some curious articles taken from an ancient mound at Marietta, Ohio:—

"In removing the earth which composed an ancient mound in one of the streets of Marietta, on the margin of the plain, near the fortifications, several curious articles were discovered the latter part of June last. They appear to have been buried with the body of the person to whose memory this mound was erected.



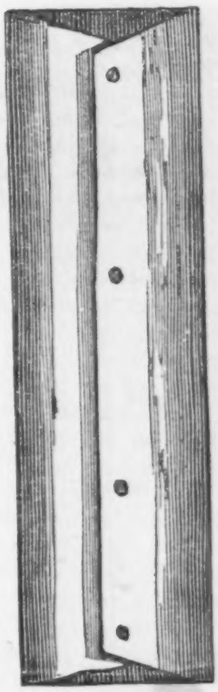
[Back view of sword scabbard.]

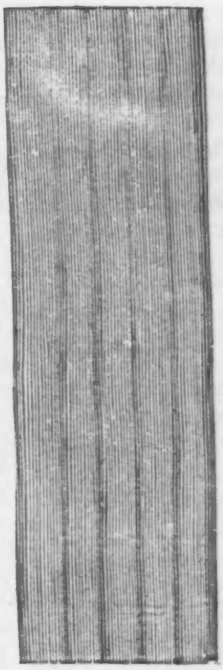


[Front view.]

"Lying immediately over, or on the forehead of the body, were found three large circular bosses, or ornaments for a sword belt, or a buckler; they are composed of copper, overlaid with a thick plate of silver. The fronts of them are slightly convex, with a depression, like a cup, in the centre, and measure two and a quarter inches across the face of each. On the back side, opposite the depressed portion, is a copper rivet or nail, around which are two separate plates, by which they were fastened to the leather. Two small pieces of the leather were found lying between the plates of one of the bosses; they resemble the skin of an old mummy, and seem to have been preserved by the salts of the copper. The plates of copper are nearly reduced to an oxyde, or rust. The silver looks quite black, but is not much corroded, and on rubbing, it becomes quite brilliant. Two of these are yet entire; the third one is so much wasted, that it dropped in pieces on removing it from the earth. Around the rivet of one of them is a small quantity of flax or hemp, in a tolerable state of preservation.

"Near the side of the body was found a plate of silver which appears to have been the upper part of a sword scabbard; it is six inches in length and two inches in breadth, and weighs one ounce; it has no ornaments or figures, but has three longitudinal ridges, which probably correspond with edges, or





[Front view of Ornament of Silver.] [Back view of Copper.]

ridges of the sword; it seems to have been fastened to the scabbard by three or four rivets, the holes of which yet remain in the silver.

"Two or three broken pieces of a copper tube, were also found, filled with iron rust. These pieces, from their appearance, composed the lower end of the scabbard, near the point of the sword. No sign of the sword itself was discovered, except the appearance of rust abovementioned.

[Copper plumb or pendant.]

"Near the feet, was found a piece of copper, weighing three ounces. From its shape it appears to have been used as a plumb, or for an ornament, as near one of the ends is a circular crease, or groove, for tying a thread; it is round, two and a half inches in length, one inch in diameter at the centre, and half an inch at each end. It is composed of small pieces of native copper, pounded together; and in the cracks between the pieces, are stuck several pieces of silver; one nearly the size of a fourpenny piece, or half a dime. This copper ornament was covered with a coat of green rust, and is considerably corroded. A piece of red ochre, or paint, and a piece of iron ore, which has the appearance of having been partially vitrified, or melted, were also found. The ore is about the specifick gravity of pure iron.

"The body of the person here buried, was laid on

the surface of the earth, with his face upward, and his feet pointing to the northeast, and head to the southwest. From the appearance of several pieces of charcoal, and bits of partially burnt fossil-coal, and the black colour of the earth, it would seem that the funereal obsequies had been celebrated by fire; and while the ashes were yet hot and smoking, a circle of thin flat stones had been laid around and over the body. The circular covering is about eight feet in diameter, and the stones yet look black, as if stained by fire and smoke. This circle of stones seems to have been the nucleus on which the mound was formed, as immediately over them is heaped the common earth of the adjacent plain, composed of a clayey sand and coarse gravel. This mound must originally have been about ten feet high, and thirty feet in diameter at its base. At the time of opening it, the height was six feet, and diameter between thirty and forty. It has every appearance of being as old as any in the neighbourhood, and was, at the first settlement of Marietta, covered with large trees, the remains of whose roots were yet apparent in digging away the earth. It also seems to have been made for this single personage, as the remains of one skeleton only were discovered. The bones were much decayed, and many of them crumbled to dust on exposure to the air. From the length of some of them, it is supposed the person was about six feet in height.

"Nothing unusual was discovered in their form, except that those of the scull were uncommonly thick. The situation of the mound on high ground, near the margin of the plain, and the porous quality of the earth, are admirably calculated to preserve any perishable substance from the certain decay which would attend it in many other situations. To these circumstances is attributed the tolerable state of preservation in which several of the articles above described were found, after laying in the earth for several centuries. We say *centuries*, from the fact that trees were found growing on those ancient works, whose ages were ascertained to amount to between four and five hundred years each, by counting the concentrick circles in the stumps after the trees are cut down; and on the ground, besides them, were other trees in a state of decay, that appeared to have fallen from old age. Of what language, or of what nation were this mighty race, that once inhabited the territory watered by the Ohio, remains yet a mystery.

"But from what we see of their *works*, they must have had *some* acquaintance with the arts and sciences. They have left us perfect specimens of circles, squares, octagons, and parallel lines, on a grand and noble scale. And unless it can be proved that they had intercourse with Asia or Europe, we now see that they possessed the art of working in metals.

"In addition to the articles found at Marietta, I have procured, from a mound on the little Muskingum, about four miles from Marietta, some pieces of copper, which appear to have been the front part of a helmet. It was originally about eight inches long, and four broad, and has marks of being attached to leather; it is much decayed, and is now quite a thin plate. A copper ornament in imitation of those described, as found in Marietta, was discovered with the plate, and appears to have been attached to the

centre of it by a rivet, the hole for which remains both in the plate and ornament. At this place, the remains of a skeleton were found. No part of it retained its form, but a portion of the forehead and scull, which lay under the plate of copper. These bones are deeply tinged with green, and appear to have been preserved by the salts of the copper.

"The mound in which these relicks were found, is about the magnitude of the one in Marietta, and has every appearance of being as ancient. I have in my possession some pieces of ancient potter's ware, found within the ancient works at Marietta. They are, some of them, neatly wrought, and composed of pounded flint-stone and clay. They are yet quite solid and firm, although they have lain for several years, exposed to rain and frost, on the surface of the ground.

"We often find pieces of broken ware near the banks of the river, and in the bottoms; but they are composed of clay and pounded clam shells; are much less compact and firm, and do not appear to have been burnt. They are evidently of the same composition with those made by the modern Indians.

"Some time in the course of this month, we propose opening several mounds in this place; and if any thing is discovered, which will throw light on the subject of the "*Ancients of the West*," it shall be communicated to your society, with a portion or all of the articles found. It seems to be a well-established fact, that the bodies of nearly all those buried in mounds, were partially, if not entirely, consumed by fire, before the mounds were built. This is made to appear, by quantities of charcoal being found at the centre and base of the mounds; stones burned and blackened, and marks of fire on the metallick substances buried with them. It is a matter of much regret that on no one of the articles yet found, have been discovered any letters, characters, or hieroglyphicks, which would point to what nation or age these people belonged. I have been told by an eyewitness, that a few years ago, near Blacksburgh, in Virginia, eighty miles from Marietta, there was found about half of a *steel bow*, which, when entire, would measure five or six feet: the other part was corroded or broken. The father of the man who found it was a blacksmith, and worked up this curious article, I suppose, with as little remorse as he would an old gunbarrel. Mounds are very frequent in that neighbourhood, and many curious articles of antiquity have been found there.

"I have also been told from good authority, that an ornament composed of very pure *gold*, something similar to those found here, was discovered a few years since in Ross county, near Chilicothe, lying in the palm of a skeleton's hand, in a small mound. This curiosity, I am told, is in the museum at Philadelphia."

BASHFULNESS is more frequently connected with good sense, than we find assurance; and impudence, on the other hand, is often the mere effect of downright stupidity.—*Shenstone.*

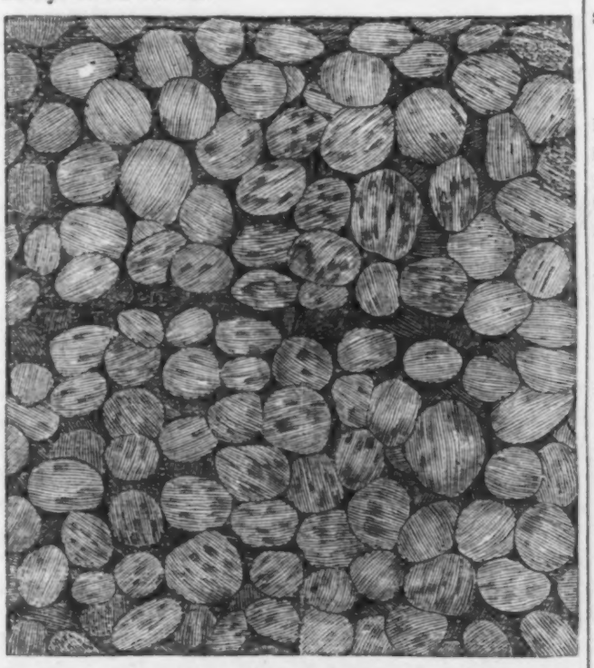
THE FIVE SENSES.

THE SENSE OF TASTE.

The sense of Taste is one that adds more largely to the enjoyment of life, than perhaps any of the others: hence the great misery of a fever results from its total loss. Like smell, however, it is the most transient in its impressions.

We need hardly say, that the organs of taste are situated in the mouth and tongue. They consist of a number of minute nervous papillæ; which, on coming into contact with the sapid juices of a body, perceive its flavour.

The tongue is a bundle of muscular fibres, sparingly intermingled with fat and cellular membrane, covered with a thin expansion of the common skin, and carries the branches of the gustatory nerves. On its upper surface, papillæ, differing in structure and office, are spread. Those on the middle and base, or root, are comparatively large, and of a mushroom shape; and those on the *tip* and *sides*, smaller, more numerous, of a brighter red colour, and in form like a pin's head, with a shaft wrapped in a white sheath. The former are little glands for secreting a portion of the saliva with which the mouth and food are moistened; and the latter are those which possess the exquisite faculty of perceiving the peculiar flavours of bodies. These papillæ are seated in the true skin, and are covered by the reticular tissue and the cuticle: and by the aid of a very powerful microscope, Sir Everard Home discovered that each one of them contained several *nervous filaments* and many bloodvessels.



[A portion of the Tip of the Tongue, highly magnified, showing the Papillæ.]

The process of taste is as follows:—when a morsel of food is received into the mouth, it is first touched by the tip of the tongue, and brought into close contact with the papillæ; when, if it be of a juicy nature, its taste is at once perceived; but if it be dry and solid, it is carried to the back of the tongue, moistened with saliva, which thus becoming impregnated with its flavour, and flowing over the

[An upright Section of one of the papillæ of the Tongue, very greatly magnified, and split open, to show the Nerves (engraved white) and the Bloodvessels (black).]

sides of the tongue, gives to the papillæ a perception of the savoury juices.

The inner sides of the cheeks and the roof of the mouth have a few of the tasting papillæ scattered upon their surfaces, and slightly assist the function. It is owing to this that a boy who lost his tongue still continued to taste.

THE SENSE OF TOUCH.

Without the sense of Touch man would be a mere machine: It belongs to every part of his physical system, and is the basis of all the others. We shall confine ourselves, however, to its *superficial* operations, and describe only the sensibility of the skin to external impressions.

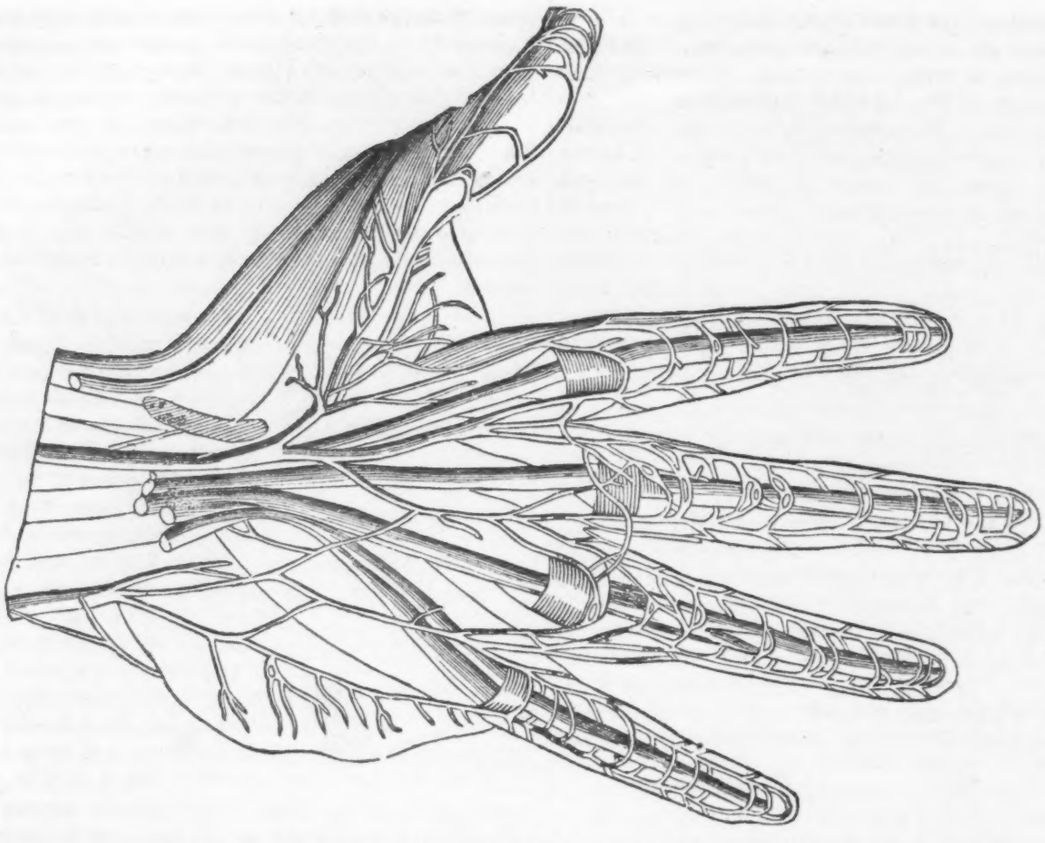
The qualities with which we become acquainted by its exercise, are, *hardness*, *softness*, *figure*, *motion*, *extension*, *heat* and *cold*.

In explaining the structures adapted to this sense we must first give an account of the structures of the skin.

The skin is not, as is commonly supposed, a simple covering, but composed chiefly of three layers, easily separable, and having each a distinct structure and use; namely, the cuticle, the reticular tissue, and the true skin.

The cuticle is the first, or external layer, and is that which is raised by a blister. It is thin, transparent, and *insensible*, and serves to protect the more sensible parts beneath it, and to shield them from the too acute impressions of heat, cold, and the like. It is pierced by the hairs, the mouths of the perspiring and absorbing vessels, and by the ducts of the skin.

The reticular tissue is the second layer, and lies between the cuticle and the true skin. It is of a soft mucous structure, interlaced with little fibrous threads, and admirably protects the sensible surface of the true skin, and gives a great pliability to the general surface of the body. It is the seat of colour in the negro; a circumstance which, as we have

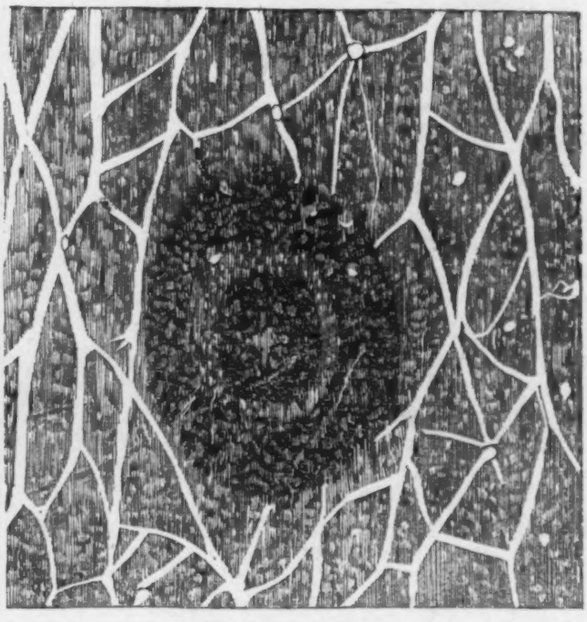


[The Hand, (the principal organ of Touch,) the skin having been removed.]

elsewhere described, is caused by the secretion of a black pigment.

[A portion of the Reticular Tissue of a White Person, greatly magnified.]

The true skin is the third and bottom layer. It is a firm elastic membrane, and bears upon its surface a number of glands and *villi*, of short threads, like the pile, of threaded surface of velvet. By its strength and elasticity, it defends the body from injury; by its glands the important functions of perspiration and absorption are carried on; and by its *villi the sense of touch is produced.* These *villi* of the skin contain the sensible extremities of the *cutaneous nerves*, and perform the sense of touch in the same manner as the papillæ of the tongue do that of taste. They are plentifully distributed over the whole surface of the body, but abound mostly on the tips of the fingers.



[A portion of the Reticular Tissue of a Black Person, greatly magnified, and showing a particle of the Black Pigment upon which the Colour of the skin depends.]

Before leaving this sense, we shall point out a few examples, in which it is exhibited in its greatest perfection. Many years ago, a celebrated *blind* organist in the Temple was famous as a keen player at whist! In the Boston *blind* Asylum the unfortu-

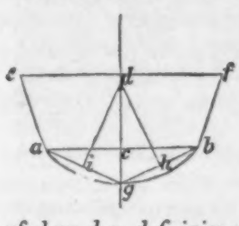
nate inmates practise successfully, a variety of trades, and make mattresses, mats, &c. And it is on creditable record, that a *blind* gentleman once made a *loom*, and worked for amusement as a weaver. But more remarkable than all, *blind* persons have been known to distinguish colours by the touch. In these cases, the sense of touch, by practice. becomes so exquisite as not to require the directing aid of sight. It is the same power which safely guides the somnambulist over house-tops, maintains the dreadful poise of the rope-dancer, enables the blind man to read with his finger his embossed-letter bible ; and which, on a *foggy* night, makes that the safest coach which is drawn by *blind* horses.

LADIES' DEPARTMENT.

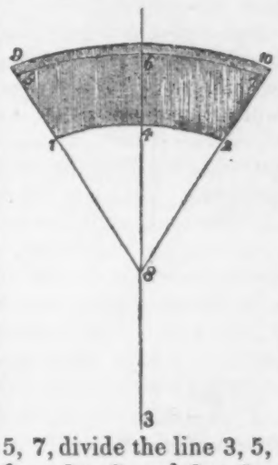
AMUSEMENT AT HOME.

To make pier baskets.—We now propose to explain the method of making some baskets to hang against the wall, principally used to ornament an empty pier, and therefore called pier baskets. If painted to represent a basket filled with flowers they have an exceedingly pretty appearance, particularly if the painting be done upon velvet or some material which will display colours to advantage. They are suspended by a riband, and may be filled

with artificial flowers: they may be placed upon a side table, a chimney-piece, &c., but look best when suspended against the wall about six feet from the ground. The first thing to be done is to determine upon the size and form of the back, or that part of the basket which rests against the wall, then the width of the bottom, and afterward the front or curved part, upon which the painting is done. The design for the back is to be done according to your idea of what will be well-proportioned. If the sides be formed so as to make nearly a right angle with the bottom line it will have a formal effect ; and on the other hand, if the angle be made very large, it will look strained when finished. An angle of about one hundred and ten degrees will be a very good proportion, and if the base be ten inches in length, and the height of the back five inches, the top will be fourteen inches. To describe this figure, first draw the line *a b* equal to ten inches in length ; find its middle as *c*, and erect the perpendicular *c d*, and produce it to *g*: mark off five inches from *c*, as at *d*, and draw the line *e f* parallel to *a b* ; mark off seven inches on each side of *d* as *d e*, *d f*, join *e a* and *f b*, and the angles *e a b* and *f b a* will be nearly a hundred and ten degrees: determine the projection of the bottom of the stand, (two inches will be well proportioned,) and mark it off from *c* as at *g*, connect *g a* and *g b* ; find the middle of each as *h* and *i*, and erect perpendiculars

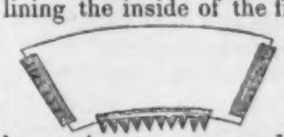


upon them as *h d*, *i d*, the point where they cross each other as at *d*, will be the centre of a circle, of which *a g b* is an arc ; from the centre *d* at the distance *d g* describe the arc *a g b*, and the figure *a g b c* will form the size for the bottom of the basket. This may all be done upon the stout pasteboard of which the basket is to be made. Place a flat rule upon the line *a b*, and with a sharp knife cut about one half the thickness of the pasteboard ; it may then be easily bent to form the upright back and flat bottom.



To make the form for the front, take three times the length of the distance *d g* of the former figure and describe the arc 1, 2, place one point, *a*, of the bottom upon the point 1 of this figure, and turn it on the line, until the points *g* and *b* touch the arc, and make a mark against them as at 4 and 2, draw the straight line, 3, 4, 6, and mark off 4 6, equal to *c d* of the former figure, with the distance 3 6, describe the arc 5, 7, divide the line 3, 5, in half as 8, and draw lines from 8 to 7, and 8 to 5, and the figure 1, 2, 7, 5, will be the form for the front. This may be cut out upon thinner pasteboard than the back, particularly if the upper part is to be finished with an irregular outline, such as that formed by a wreath of flowers.

We will suppose you intend to ornament the front with a painting to represent a basket filled with flowers: the first thing will be to mark out the form of the front upon drawing paper for the painting, and as some of the flowers should rise above the line 5, 7, it will be necessary to take one at the distance required for such as 9, 10, and in drawing the design to represent the basket work, the right position of lines will be obtained by dividing the line 1, 4, 2, into the number of parts intended, and drawing from the point 8 through each one until it meets the flowers ; when the drawing is finished it is to be cut out close to the form 1, 2, 10, 9, but before it is pasted on to the card-board a strip of coloured paper, and, to make it stronger, a piece of Irish also, should be pasted to the ends of the card-board and cut into slips halfway to make it bend easily. A piece of paper only may be pasted all along the lower curved line, as so much strength will not be required there as at the sides ; the notched part of these should be cut in a vandike form, to prevent their falling awkwardly over each other. The coloured paper for lining the inside of the front may be cut out to the



exact form and pasted on, and at the same time the drawing also may be put on ; after which it should be put in a press or under a weight, to keep it flat and the parts close together while drying. The coloured paper for lining the inside of the back part of the basket may be cut out to the exact form all round, except at the top, where a space must be left for turning over, and it should be pasted down at once, and then put in press. The lining for the remaining parts must be cut out in two forms, one for

the back, which may be cut to the size of the card except at the bottom, where a piece may be left, to bend under the bottom; after the front and back have been joined together, the piece for the bottom may be cut out to the exact form.

When the front with the lining and painting have been in press about three hours, the form of the flowers at the top may be cut out, either with a penknife or chisel. It will be well to leave them in press a whole day before the back and front are connected. As it is desirable the sides should dry very quickly, it will be proper to use gum or thin glue instead of paste. One side may be fixed while the front and back are flat on the table, only take care to place them sufficiently wide apart to admit of the bend when joining the front to the other side. In ten minutes after glue has been used it will be thoroughly set, and the other side may be fixed on: this must be done while the work is held in the hand, and the finger kept a minute or two on each slip until it is fixed. After this the strips which connect the front and bottom may be fastened down, and to secure them a few lead weights may be put inside while the basket stands on the table. The coloured paper may then be pasted upon the back, and the piece to cover the bottom afterward, which will finish the pasting. The riband is to be fastened to each corner, and a small brass tack may be put into the middle of the back to make it hang close to the wall.

OF THE WRONG POSITIONS WHICH RESULT FROM DEBILITY, AND FROM THE EMPLOYMENT, IN THE PARTICULAR PURSUITS OF EDUCATION, OR THE COMMON ACTS OF LIFE, OF MUSCLES UNFAVOURABLY SITUATED.

The use of stays and other restraints, as well as sedentary habits, causing, in the manner heretofore described, debility of many of the muscles, naturally induces the use, in the particular pursuits of education or the common acts of life, of other muscles, of which the power is less impaired, but which are less favourably situated for the purpose in view.

This is the great cause of wrong positions of the figure, and all their fatal consequences.

The following are a few of the most remarkable of the wrong positions resulting from debility or from the improper employment of the muscles in such cases. All of them have been more or less noticed by writers on deformity, except perhaps that connected with the guitar and the corrective means it may afford, the peculiar effects of riding on horseback, and the general truth as to onesidedness to which most of them tend.

In standing.—Boys compelled to stand during a long lesson relieve the muscles that maintain the body erect, by balancing themselves on one leg, which is generally the left, in order that the more active right may be free. This throws out the hip, hollows the body, and depresses the shoulder of the side on which they stand. If this be the left, it raises the right shoulder.

Girls, during the same act, relieve themselves by passing the hand round the back, so as to support it, and they thereby draw down the opposite elbow and consequently the opposite shoulder.

In sitting.—By sitting always on the same side of the fire or window, persons lean to one side, and thereby depress the shoulder of that side, and raise opposite one.

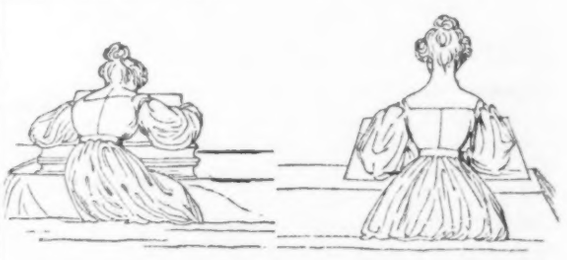
Girls, in sitting, contract a habit of balancing the body upon one hip, and of throwing on it the weight of all the parts above it, by drawing the spine to that side, and leaning the head and neck to the other. This raises relatively the shoulder of the side on which they rest, as is seen when they stand erect and carefully retain the same position of the trunk.

A deviation from this circumstance (of the shoulder of the side on which they rest being raised in sitting) takes place in occupations which engage the right hand and arm. Though the body rests on the left hip and is still hollowed on the right side, the right shoulder is greatly raised, in order to facilitate its motion.

[Wrong and right positions in writing.]

In writing.—This takes place in writing, and is illustrated in the cut above. Being a frequent act, which the right arm can alone perform, and in which the right shoulder is always raised, it is one of the most injurious, and tends greatly to throw the lateral deviation toward the right shoulder.

To remedy this tendency, it has been recommended to equalize the shoulders, by placing a book under the left elbow.



[Wrong and right positions in drawing.]

In drawing.—In drawing, as in writing, both sexes are apt to acquire the habit of sitting, with an inclination of the body to the left side, the left arm resting on the elbow or hanging by the side, and sometimes with the palette in the left hand, whilst the right arm and shoulder are raised, for the purpose of directing the pencil, the head being leaned to the left shoulder. This also tends greatly to throw the lateral deviation toward the right shoulder.

On the position in drawing, Mr. Howard remarks: "There is a tendency to throw all the weight on the left elbow, for the purpose of having greater liberty with the right arm: and the evil of this is increased by the height of the desk or table on which the drawing is placed. A habit is thus contracted of leaning over the drawing, and resting the chest against the edge of the table, which is productive of

contraction, of vital derangements, and at the same time, of a cramped manner of drawing, sufficiently objectionable in itself.

"The proper position, when sitting, is to have the drawing considerably lower than the waist, and to sit erect without throwing any weight on the left hip, elbow, or hand. The drawing can be seen better, the whole being visible at one glance; and much greater freedom in the style must result from the removal of the real constraint of the right arm.

"In fact, the object for which so much is sacrificed in the false position, is gained in the true, without any sacrifice at all. It is admitted that in the false position, there is not so much liberty for the hand to disobey the eye—it cannot go so far or so fast in an erroneous direction; but this mode of controlling the hand is quite a delusion, as in the true position it will have much greater scope to obey the mind, which, after all, is the only true source whence capability of drawing is derived.

"The advantages, therefore, of commencing drawing in the true position are twofold; first, with regard to the attainment of the art, and, secondly, with regard to the preservation of health and of beauty of figure."

[Wrong and right positions in guitar-playing.]

In guitar-playing.—In playing on the guitar, in some instances, the right knee is elevated to support the instrument, and the right shoulder is slightly raised. This is avoided by the far preferable position of Sor. The practice alluded to, therefore, tends further to throw the lateral deviation toward the right shoulder.

More frequently, perhaps, the guitar is rested in the lap, the left foot is placed on a stool, and the left shoulder is raised. This, of course, tends to throw the deviation in that direction.

The present is the proper place to observe that, for a lady who also plays on the harp, or is engaged much in any other pursuit which tends to raise the right shoulder, the last mode of playing on the guitar, which raises the left shoulder, is preferable, as counteracting the opposite tendency of the other pursuit.

On this observation as to these two instruments, may be founded a general rule as to finding similar compensations in all.

Unfortunately, however, these pursuits are in general solitary; and their peculiar tendency to the right or to the left, is unchecked by any other countervailing circumstance. Nay, when one is a principal and predominating occupation, there is always a strong tendency to assume the same attitude and position in every other action of life. Hence, an insensibly growing, and at last irremediable deformity.

[Wrong and right positions in harp-playing.]

In harp-playing.—In playing on the harp, the right shoulder is at once raised and thrown back, because the treble strings, which engage the right hand, are placed higher and further back; while the base strings, which engage the left hand, are placed lower and further forward. Here, then, occurs a twist of the body which cannot fail of being detrimental to those who have not attained their full growth, as well as an elevation of the right shoulder, still further increasing the tendency to deviation in that direction.

[Wrong and right positions in riding.]

In riding.—In riding on horseback, the body is somewhat similarly twisted, and the right shoulder is apt to be thrown upward, increasing apparently the tendency to deviation in that direction.

This tendency, however, will in general be only apparent; for, while the right shoulder is thrown upward, the right haunch is often still more thrown upward, and the whole of the right side is shortened; so that, were the lady to be placed on her feet, extending only her limbs, and holding her body in the same position as on horseback, with the right side contracted, the right shoulder would in reality be depressed, and the tendency to deviation would be to the left side.

Thus, riding on horseback might also perhaps be

employed as counteracting the far more general tendency to raise the right shoulder, which is produced by the more frequent and longer-continued acts of writing, drawing, &c., and by the perpetual employment of the right hand in all the acts of common life, which compel the greater or less liberation of the shoulder from the corset or stays, its increased development, and the almost universal tendency to right-sided deviation and deformity.

The greatest objections, however, to riding on horseback as an exercise for ladies, are the twist which it gives to the whole body; the elevation which it produces of one of the shoulders; the immense increase which it causes in the waist by incessantly employing and developing the large muscles of the sides, in order to secure the riders balance; the enfeeblement and deformity which it causes in the lower limbs, the coarseness of voice, which is always caused by conversing in a loud tone with a riding companion; the increased exposure to weather, which is so unfavourable to the complexion; the early improper irritation and subsequent debility which it produces;—in short, its altogether masculine and unwomanly character.

[Wrong and right positions in lying in bed.]

In lying in bed.—In sleeping on a featherbed, with high pillows, the body is not only enervated, but as we generally lie on the right side, the right shoulder is again raised, and the tendency to deviation in that direction still further increased. The spine is also twisted, and the neck turned awry.

When two children sleep in one bed, they seldom fail, unless they change sides, to contract a habit of lying always on the same side of the body; and when this is practised every night during several years, it can scarcely fail to produce deformity.

Thus, as most curvatures of the spine are lateral, their causes are also lateral; and thus also the tendency of the greater number of the acts described, and especially of the frequent and long-continued act of writing, the similarly continued act of drawing, and the long-enduring state of sleep, is added to that of all the acts of common life, in producing deviation and deformity, primarily and fundamentally, toward the right shoulder; and it is for these reasons that deviations to that side so greatly exceed those in the opposite direction.

OF THE DEFORMITY IN WHICH WRONG POSITIONS TERMINATE.

THE INJURY THUS DONE TO THE LOCOMOTIVE ORGANS AND FUNCTIONS, OR THOSE ON WHICH GENERAL MOTION DEPENDS.

It has been already shown that the intervertebral substance holds together the two vertebræ or bones of the spine between which it is interposed; and though it firmly adheres to the opposed surfaces of both, and prevents their loose or free action, it yet permits a most extensive motion of the whole column of bones, taken conjointly, in consequence of the great elastick power of which it is possessed.

To whichever side the body inclines, the intervertebral substance readily yields; and, when the weight of the body and the force of muscular contraction have ceased to bend the spine to one particular side, it returns in a moment to its proper position, by a powerful resilience of this substance, and the aid of antagonist muscles.

Now, even in a healthy and vigorous individual, an unequal action of the originally symmetrical masses of muscle, which have already been described as situated laterally and posteriorly to the spinal column—if this action be frequent, excessive, or protracted, may evidently impart an unsymmetrical form to the bones which they powerfully and perpetually influence; and if so, how much more easily would the same organs, acting unequally, induce deformity in the delicate female who is subject to perpetual constraint, who is consequently enfeebled, and to whom wrong position has become habitual!

In a healthy woman, a double curvature of the spine may be brought on by the habit of always nursing her child on her left arm. Clerks and other sedentary persons, frequently contract the lateral, or twisted curvature. Ploughmen have the right shoulder much higher than the left. Sailors have generally the spine bent forward.

"It is notorious that artisans, generally, contract some bend or twist in their backbone or limbs, so characteristick as to enable a practised eye easily to judge of their respective pursuits, without any other information than what is derived from their appearance."

In short, "any undue inclination to either side during life, if frequent, constant, or protracted, will cause a certain diminution in the thickness of this (the intervertebral) substance on the side to which the body inclines, accompanied by a proportionate rising of the same on the opposite side; and will, in the course of time, produce permanent distortion of the whole column of bones—the result of the compression, and consequent absorption of the intervertebral substance.

"This effect will be more easily produced during childhood, when the bones are in a state of growth, the ligaments more yielding, and the intervertebral substance peculiarly soft."

If owing to constraint, want of exercise, &c., "a due supply of blood be not afforded to the bones of the spine, they will be so much nearer to the state of cartilage than they ought to be; and will consequently yield more readily to the operation of any undue or partial pressure."

In young persons subject to the causes already described, "the bones of the spine never become

firm, yield easily to the superincumbent weight, aided perhaps by the force of the muscles: and thus, being disposed to grow unequally, impart to the spine a lateral inclination of longer or shorter continuance.

"The spine thus deviates from its natural direction, slightly at first, but, finally, to such an extent as to make it betray its want of symmetry, even to the most indifferent observer."

This deformity "very rarely manifests itself before the child has attained the seventh or eighth year of age. From this period to the sixteenth or eighteenth year, the highest degree of excitability of the nervous system exists.

"There are few mothers who are not familiar with one of the first characteristicks of this affection—a projecting, high, and distorted shoulder.

"On a more careful examination, it is found that the central groove of the back deviates from a straight line; than there is a greater distance between a given point of the original perpendicular spinal line and the top of the elevated shoulder bone, than between the same point and the corresponding top of the opposite side. As the deformity advances, the gait of the young person becomes awkward and shuffling; her clothes cannot be made to fit well upon her; they appear to be drawn to one side, generally the right. The sash encircling her waist is observed to dip in the same direction, while the right breast presents a more than ordinary fulness, and the corresponding collar-bone displays a proportionate elevation. In short, the child is deformed. Her backbone is distorted.

"In proportion as the inclination takes place in the upper part of the back, between the shoulders, nature, in order to counterbalance the evil, and preserve the equilibrium of the body, calls into action the muscles of the lower part of the spine on the opposite side; so that, in confirmed cases, a double curvature is produced.

"As the infirmity advances, a similar counterpoising power is exerted by the muscles of the spine attached to the vertebræ of the neck, and a third or upper curve is then formed, so that the spine presents a serpentine appearance, inclining to each side alternately.

"The ribs, in consequence of the alteration in the course of the spine, aided by a continuance of the same debilitating causes, soon partake of the extending change that is going on, and, deviating from their true direction, contract and deform the chest.

"Finally, the basin or pelvis, on which the spine rests, becoming involved, produces an inequality in the size of the hips, the contrary of that which obtains in the shoulder, and causes the body, when viewed from behind, to appear as if twisted on itself."

"The longer the deformity exists, unless the causes whence it proceeds be discontinued, the more conspicuous it is sure to become.

"Pinæus, who flourished towards the close of the sixteenth century, asserts, (so common was it at that period,) that 'of fifty females of the higher or more civilized ranks of society, scarcely two could be found who had not the right shoulder higher, and more projecting, than the left,'—an assertion which, but slightly modified, may, with considerable truth, be applied to young women of a corresponding class in modern times." The doctor might, I believe, with truth, have said that, in later times and in the great capitals,

[The curved spine and the natural one.]

Pinæus's estimate would be under, rather than over the truth.

"During childhood, backboards, steel-stays, constrained positions of the body, concealed pressure, and similar expediments, are resorted to, with a view to force in, or bind down, the high and projecting shoulder, erroneously supposed to be alone in fault. This treatment, it need hardly be observed, is almost invariably productive of an aggravation of the mischief it is designed to remedy, as well as injurious to the form of the chest.

"If the shoulders be braced by means of straps to a plate of iron placed on the back, it is evident that the action of the muscles, with which nature has endowed the body for the express purpose of holding the shoulders in a graceful position, will be superseded, and will, from want of due use, become proportionately incapable of performing their wonted office when the strap is removed.

"Artifices of dress being now substituted for mechanical contrivances, manipulations of the waiting-maid supply the place of well-directed medical and surgical skill; or, in more pointed cases, the machinist is resorted to, who not unfrequently increases the deformity he undertakes to cure.

"Machines, of every description, for the prevention of deformity, or for the cure of bad habits, should be avoided: they are at best very inefficient substitutes for the means provided by nature. In young persons, in whom we may wish to correct round shoulders, or a habit of stooping, we can obtain our object, and at the same time improve the general health and strength, more by the superintendence of their exercises and amusements, so as to make a moderate demand for muscular exertion on particular parts of the body, than by the use of back-boards, collars, or any kind of mechanical contrivance." To these remarks of Dr. Duffin, we will only add that Riolan, chief physician to Mary de Medicis, observed that most of the women of his time had the right shoulder larger than the left; and that Winslow first showed that, by the pressure of stays, the lower ribs also were depressed, and their cartilaginous portions unnaturally bent.

To all the arts and sciences nothing can be more hostile than the romantick or barbaresque taste; for this distorts nature itself, which is the universal prototype of the noble and the beautiful: and hence it is that the Spanish nation has shown little feeling for the fine arts or the sciences.

[Ozoro Esther.]

[Kefla Yasous.]

LIVING COSTUMES.

THE above cut is a faithful likeness of two individuals who were extremely important at the time of Mr. Bruce's visit to Abyssinia. Ozoro Esther, a daughter of the queen, was celebrated through the whole country for her beauty and talent; and among the principal characters who figured at court, in the camp, and in the field, none was entitled to higher respect than Kefla Yasous. His conduct at the battle of Limjour, where the royal troops were thrown into consternation, saved the king, and prevented the effects of a hasty retreat. The portrait here given is understood to be a faithful likeness of that brave warriour, while it represents the headdress of an Abyssinian chief after a successful contest either with a personal or a publick enemy. The horn displayed on the forehead will illustrate the allusion made in the Scriptures, to the horn of the righteous, and to the lifting up of the horn on high while the proud man speaketh with a stiff neck.

In Purchas's Pilgrims, we find the following remarks, on the condition of the Abyssinians nearly three hundred years ago: "Antonius Fernandez," says he, "thus writeth of their apparel. The richer sort buy garments of the Saracens, and clothe themselves in their fashions. The rest, both men and women, cover their bodies either with a skinne or pelt, or with a coarse hempen cloth without other arte than the weaver's. When they doe reverence to any, they put off this cloth from the shoulders to the middle, remayning half-naked. They let their haire grow, that serves them for a hat and head-tyre. For finer braverie they curle and anoint their haire with butter, which shewes in the sun like grasses in the morning dew. Lest their lockes and curles should be disordered when they goe to bed, each one pitcheth a forke or crutch a foot high in the ground, betwixt the hornes whereof hee reposeth his necke, and sleepeth with his head hanging. They use to brande markes on their bodies, especially on the face. And on the little fingers they suffer the nailes to grow as long as they will, like cocke's spurres, which also they sometimes cut from cockes and fit to their fingers. They colour their hands and feet (which are bare) with the juice of a reddish barke. They are artlesse and lazie, neglecting hunting and fishing; and whereas wooll, hempe, and cotton, might easily be had, yet the vulgar are clothed with undressed pelts, each wearing a ramme's skinne tyed to his hands and feet. They lie on oxe-hides without quilts or mattresses; for tables they use great bowles of wood rudely hollowed, without any naperie. Vessels they have of blacke chalke. Few but Saracens use merchandise, and in few places; most exercise husbandrie; the gentry follow armes and the court. They have no great cities, but villages unwalled and unfortified. Their greatest towne hath scarcely one thousand six hundred houses. Their houses are small, without elegance, without storie, almost without arte, rounde, and covered with earth and straw. They write no letters, nor use records in judgments or other writings, but in their holy things and offices of accompts for the king. They use no dirges or devotions for the dead. They use pictures, but not carved nor graven images. They paint Christ, the Blessed Virgin, and other saints in blacke forme, as devils and wicked men in white. So they paint Christ and his apostles at the Maundie blacke, and Judas white; Christ in his Passion blacke, and Annas, Caiaphas, Pilate, Herod, and the Jewes, white: Michael blacke, and the devil white."

FORGIVENESS.

How beautifully falls
From human lips that blessed word—forgive!
Forgiveness—'its the attribute of God—
The sound which openeth heaven—renews again
On earth lost Eden's faded bloom, and flings
Hope's halcyon halo, o'er the waste of life.

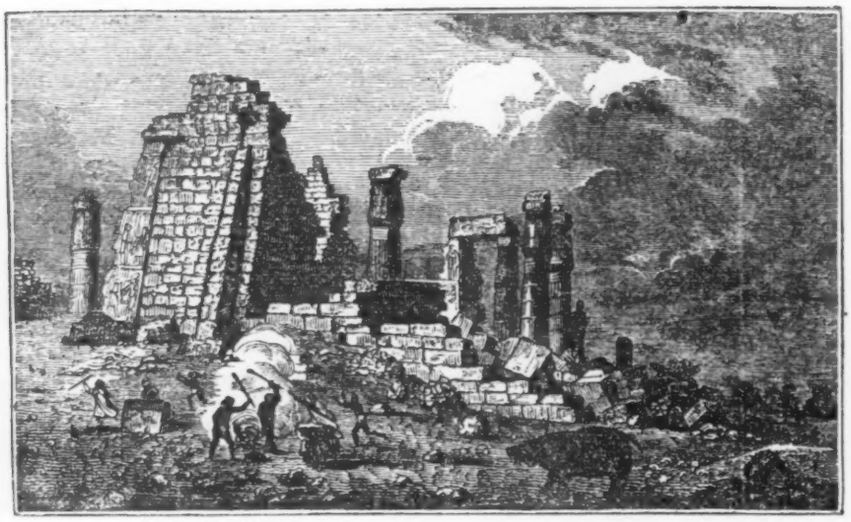
Thrice happy he whose heart has been so schooled
In the meek lessons of humility,
That he can give it utterance: it imparts
Celestial grandeur to the human soul,
And maketh man an angel.

[Birch Tree.]

AMERICAN TREES.

In the United States, there are to be found no less than six species of the birch: these are the black, the white, the yellow, the red, the canoe, and the common European birch. Of these the *black* birch grows to the height of seventy feet; the bark upon the smaller trees is smooth, grayish, and perfectly similar in its organization to that of the cherry-tree. The wood when freshly cut is of a rosy hue, which deepens by exposure to the light. Its grain is fine and close, and hence it can be highly polished, and is used for tables, bedsteads, the frames of arm-chairs, &c. When the leaves and bark are bruised, the juice from them is extremely pleasant. The *yellow* birch abounds in the forests of Nova Scotia, of New Brunswick, and in Maine, New Hampshire, and Vermont. Its wood is inferiour in quality and appearance to that of the black birch, and never assumes so deep a shade; it is however strong, and is used for making furniture; sometimes also for that part of the frames of small vessels which remains in the water. It is also used for firewood. The *canoe* birch (so called from the use to which its bark is applied) grows in the declivity of hills and in the bottom of fertile valleys. Its branches are slender, flexible, and covered with a shining brown bark, dotted with white. On trees, however, not exceeding eight inches in diameter, the bark is of a brilliant white. This bark is devoted to many uses: in the newly settled parts of the country, the people place it immediately under the shingles of the roofs of their houses; baskets and boxes are also made of it, and when it is divided into thin sheets, it answers the purpose of paper. But the most important use to which it is applied, is the construction of canoes. For this purpose the largest and smoothest trunks are selected. In the spring, two circular incisions are made several feet apart, and two longitudinal ones in opposite sides of the tree, after which a wooden wedge is introduced, and the bark easily separated. These layers are from nine to twelve feet long, and from two to three feet broad. In forming the canoe they are stitched together with the filmy roots of the white spruce about the size of a quill, which are deprived of their bark, split and soaked in water. The seams are coated with resin. These canoes are very light; one large enough for four persons, will weigh only from forty to fifty pounds. The *white* birch (*B. populifolia*) is much smaller, growing only to the height of from twenty-five to thirty-five feet. Its wood is very soft, and perfectly white. It decays very soon, and consequently is unfit to be used as timber. The *red* birch (*B. rubra*) is found abundantly in the southern states, where it is called simply *birch*. It grows to the height of the other birches, and its wood is marked longitudinally by red vessels which intersect each other in different directions. It is employed for making bowls, spoons, &c., and also for hoops. The *European* birch (*B. alba*) is found in some parts of the United States. But in Europe it is by far the most common of the birches. In general it reaches a height of fifty or sixty feet, with a diameter of a foot and a half or two feet. It blooms early in the spring, and sends forth pendulous catkins of flowers. The wood of this birch is hard, tough, and white, and is used by wheelwrights, turners, and carpenters, in the manufacture of various useful and ornamental articles. In some countries, wooden shoes are made from it. The bark is thick, and is covered with a white scaly cuticle. It is astringent and bitter, and has been used in the cure of intermittent fever. On account of the resinous matter which it contains, it serves for torches to the inhabitants of the Alps. A decoction of the bark is used by the Laplanders in the preparation of rain-deer-skins. An empyreumatick oil also is obtained from it, which the Russians employ in tanning, and it is from this oil that Russia leather derives its peculiar odour. The inner part of the bark, in its young state, contains a quantity of fecula or starch, and from it the inhabitants of the northern regions make a sort of cake, which, along with smoked salt-fish, constitutes their food during the winter. The leaves of the birch are bitter, and have been used as a substitute for tea. They die wool of a yellow colour. A decoction of them is said to possess vermifuge and diuretick qualities, and has been praised in calculous complaints and scurvy. A spirituous infusion of them is employed by the Russians and Swedes as an embrocation in rheumatism.

[Leaves and Blossoms of the Birch.]



[View of the Temple of Soleb from the Northeast.]

ARCHITECTURAL MONUMENTS.

In a former number of the Magazine, we have attempted to enable our readers to form some idea of the interesting architectural monuments, which formerly existed in the countries of the East, but which are now a mass of ruins. The cut at the head of this article, and those which follow it, are from Russell's interesting work on Nubia and Abyssinia, which forms the sixty-first number of Harper's Family Library. In describing this ruin, Mr. Russell remarks :—

"Near the parallel of the twenty-first degree of latitude, and about four hundred paces from the western bank, stand the ruins of the magnificent fane just mentioned. In advancing towards it, the eye is first attracted by an elevated stone foundation, thirty feet in thickness, extending in front of the temple, and of equal length with the portal.

"The remains of two sphinxes are seen at either side of the approach, where there was a staircase which led to the main building, now in a state of complete dilapidation. The front of the portal, of which only a part is left, is about a hundred and seventy-five feet long; and the width of the steps is not less than fifty-seven feet. The wall, which is twenty-four feet thick, is not solid, but contains a variety of cells, set apart, it may be presumed, for a variety of uses, no longer obvious to the uninitiated.

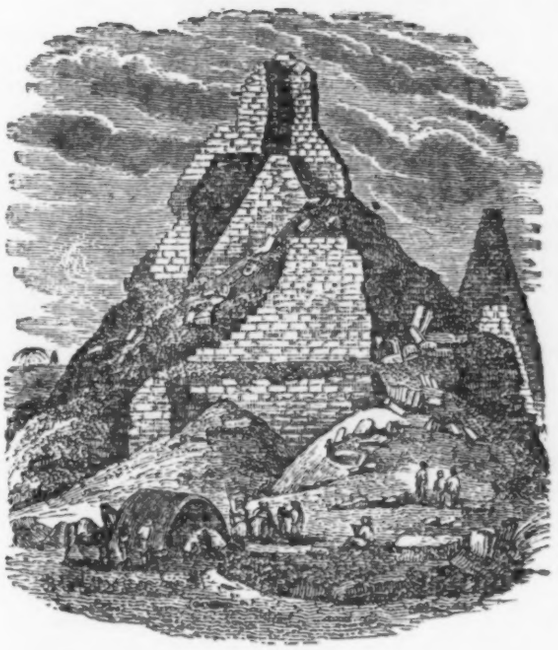
"The first chamber is more than a hundred feet in breadth, and eighty-nine in depth; round three sides of which runs a single row of pillars, while on the fourth there are indications of a double row; making in the whole thirty columns, of which seven are still standing and perfect. They seem all to have been executed from the same model; the diameter of the base being sixty-seven inches, and the height about forty feet. They are inscribed with hieroglyphicks only, and exhibit no figures which can properly be referred to the hand of the sculptor.

"There is a second chamber, in which it is still possible to trace a row of twenty-four pillars resembling those in the first; but their fragments are scattered about in every direction. The very bases of some of them are rooted up, and the mud-foundation on which they stood is completely exposed. So entire yet so partial a ruin, it is remarked, can only be attributed to the sudden yielding of the ground; for an earthquake would not have spared the columns which remain in other parts of the edifice.

"Mr. Waddington observes, that the temple of Soleb affords the lightest specimen he had any where seen of Egyptian or Ethiopian architecture. The sandstone, of which most of the columns are composed, is beautifully streaked with red, giving them from a distance a rich and glowing teint. As the walls have almost entirely disappeared, and the roof fallen in, there remains no ponderous heap of masonry to destroy the effect of these beautiful pillars, backed by the mountains of the desert or the clear blue horizon. Here the man of taste does not contemplate a gloomy edifice, where heaviness is substituted for dignity, height for sublimity, and size for grandeur, nor measures a pyramidal mass of stonework, climbing up to heaven in defiance of nature and propriety. 'We seemed,' says the traveller just named, 'to be at Segesta, at Phigalea, or at Sunium, where lightness, and colour, and elegance of proportion, contrasted with the gigantick scenery about them, make the beauty of the buildings yet more lovely, and their durability more wonderful. There is no attempt to imitate or rival the sublimity that surrounds them; they are content to be the masterpieces of art, and therefore they and nature live on good terms together, and set off each other's beauty. Those works that aim at more than this, after exhausting treasuries, and costing the lives and happiness of millions, must be satisfied at last to be called hillocks.'"

Nor is this the only ruin to be found in that vicinity, as Mr. Russell continues :—

"Upon inspecting the map of Nubia it will be observed, that at a point near Old Dongola, the river turns towards the northeast, and gives an insular form to a large extent of land distinguished as the province or kingdom of Merawe. In this tract there are some magnificent monuments near the spot which is supposed to have contained the ancient capital. For example, there are the remains of seven temples, of which the largest is four hundred and fifty feet long (almost equal to St. Paul's) by one hundred and fifty-nine broad. The principal apartment is

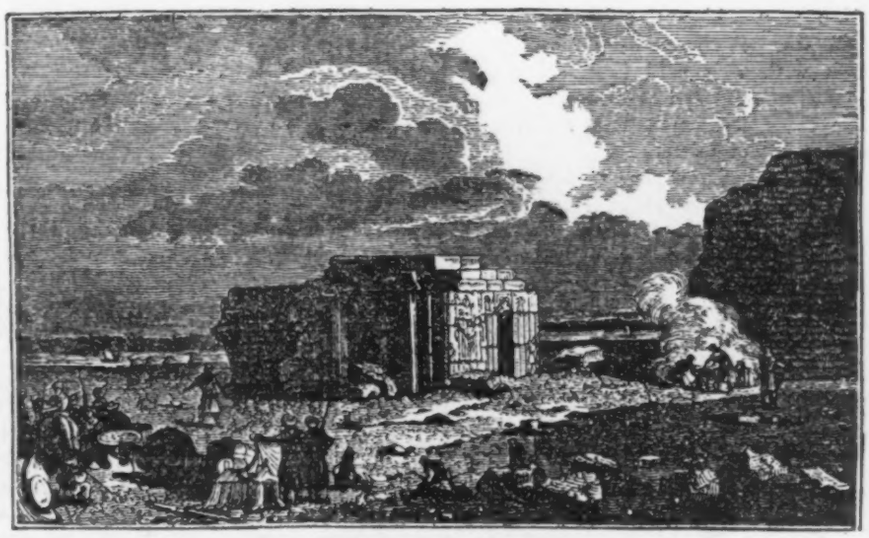


[El Bellal.]

one hundred and forty-seven feet by one hundred and eleven, and the next is one hundred and twenty-three by one hundred and two. This edifice is, generally speaking, in a very ruined state; and some of the materials are in so confused and shattered a position as to indicate that they had been broken down and unskilfully replaced. The other temples are of much smaller dimensions, but several of them more perfectly preserved; and in two, most of the chambers are excavated in the solid rock. This is part of a lofty eminence, called Gebel el Berkall or the Holy Mountain, along the foot of which all the monuments are erected. Here are also seventeen pyramids, while at El Bellal, seven miles farther up the river, there is a more numerous and lofty range of these structures, none of which, however, rival those of Memphis. A general character of ruin pervades the whole, and some, indeed, are reduced masses of mere rubbish; a state which seems at least partly owing to the friable nature of the sandstone used by their architects. The sculptures and ornaments which can still be traced bear marks of very different periods of art; some being extremely rude and others nearly as perfect as any in the palaces of Egypt."

The temple of Samnè, a view of which, taken from the west is given below, also deserves attention. "It is built, we are told, of sandstone, and differs in its shape from other Egyptian edifices. It consists of a principal building about thirty-six feet in length and nine in width. On each side stood originally four small pillars, of which two remain on the one hand and three on the other; one of the former has a polygonal shaft, the remainder being square; they are all covered with sculptures, and the pillars are joined to the main building by blocks of stone, which serve as a roof to the vestibule. The inner walls of the apartment are adorned with hieroglyphicks and mystick representations of the divine worship. On both sides a long ship is delineated, with Osiris in it; and the group of two figures resting their hands upon each other's shoulders is every where repeated. The roof is painted blue, and there are some remains of colour on several of the carvings.

"Near the back-wall, opposite the main entrance, a statue about five feet in length lies on the floor, the head of which has been cut off; the arms are crossed upon the breast, while in one hand is the flail, and in the other the instrument usually called a crosier. On the outer wall, Burckhardt distinguished some figures of Mendes, the Jupiter Ammon of the Greeks and later Egyptians. All the sculptures are rather coarsely executed; and the lines dividing the compartments wherein the hieroglyphicks are cut, are not straight, the effect either of intention or of great ignorance in the first principles of art. The same remark applies to the architectural labours of the Hindoos, in which there are constant deviations from rectilinear position, even in their arrangement of the finest columns. Some of the hieroglyphicks on the pillars have evidently been left unfinished, and those which are completed do not appear to have proceeded from the hand of a master."



[View of the Temple of Samne.]

USEFUL KNOWLEDGE.

Ticks on Sheep, a simple, easy, and infallible method of destroying them.—Take Scotch snuff, open the wool on the back of the sheep from head to tail, dust in a small quantity so as barely to colour the felt—do the same on the belly—pursue the same process by making a ring around the neck near the head, and another near the shoulders, and a third back of the shoulders, and a fourth around the body at the flanks of the sheep.—The odour of the snuff will diffuse itself through the whole fleece in such a manner as to destroy the ticks in the course of two or three days, and will in no degree injure the sheep or the wool. To apply a suitable quantity, and nothing more, of the snuff, procure from a tinman a tin box of the size of a tin pepper-box, which will cost six cents—have the cover or cap like a tunnel, with five quite small holes at the little end of the cap—fill it with snuff, then use it in the parted wool as you would a pepper-box when you cook a beef-steak. I give this from experience, and say with confidence that it will not fail of the desired effect.

Incombustible wash and stucco White.—The basis for each is lime, which must be first slaked with hot water in a small tub or piggin and covered to keep in the steam; it then should be passed in a fluid form through a fine sieve to obtain the flour of the same. It must be put on with a painter's brush—two coats are best for outside work.

First. To make a fluid for the roof and other parts of wooden houses, to render them incombustible; and coating for brick, tile, stone-work, and rough-cast, to render them impervious to water, and give them a durable and handsome appearance.

The *proportions* in each recipe are *five gallons.*—Slake your lime as before directed, say six quarts, into which put one quart of clean rock-salt for each gallon of water, to be dissolved by boiling, and skimmed clean; then add to the five gallons one pound of alum, half a pound of copperas, three fourths of a pound of potash, the last to be gradually added, four quarts of fine sand or hard-wood ashes, say hickory. You may add any colouring matter your taste may dictate. It should be put on with a painter's brush; it will, it is said, look better than paint, and be as lasting as slate; will stop the small leaks, prevent the moss from growing, and render the part painted with it incombustible.

Second. To make a brilliant stucco whitewash.—Take clean lumps of well-burnt stone-lime, (oyster-shell lime will do as well,) slake as before directed; add one quarter of a pound of whiting or burnt alum pulverized, one pound of sugar, three pints of rice-flour made into a thin and very well-boiled paste, one pound of clean glue, dissolved by simmering over a slow fire. It is more brilliant than plaster of Paris, and will last for fifty years. It should be put on warm.

Obtaining Cream from Milk.—A process of divesting milk of its component portion of cream, to an extent hitherto unattainable, has been effected by Mr. George Carter, of Nottingham Lodge, and is thus detailed by that gentleman, in a paper presented to the Society of Arts:—"A peculiar process of extracting cream from milk, by which a peculiar richness is produced in the cream, has long been known and practised in Devonshire; this produce of the dairies of that country being well known to every one by the name of "clotted," or "clouted cream." As there is no peculiarity in the milk from which this fluid is extracted, it has been frequently a matter of surprise, that the process has not been adopted in other parts of the kingdom. A four-sided vessel is formed of zinc plates, twelve inches long, eight inches wide, and six inches deep, with a false bottom, at one half the depth. The only communication with the lower compartment is by the lip, through which it may be filled or emptied.—Having first placed at the bottom of the upper compartment, a plate of perforated zinc, the area of which is equal to that of the false bottom, a gallon (or any given quantity) of milk is poured immediately when drawn from the cow, into it, and must remain there, at rest, for twelve hours; an equal quantity of boiling water must then be poured into the lower compartment, through the lip; it is then permitted to stand twelve hours more, (i. e., twenty-four hours altogether,) when the cream will be found perfect, and of such consistence that the whole may be lifted off by the finger and thumb. It is, however, more effectually removed, by gently raising the plate of perforated zinc from the bottom, by the ringed handles, by which means, the whole of the cream is lifted off in a sheet, without remixing any of it with the milk below. With this apparatus I have instituted a series of experiments; and as a mean of twelve successive ones, I obtained the following results—four gallons of milk treated as above, produced in twenty-four hours, four and a half pints of clotted cream, which, after churning only fifteen minutes, gave forty ounces of butter—four gallons of milk treated in the common mode, in earthenware pans, and standing forty-eight hours, produced four pints of cream, which after churning ninety minutes, gave thirty-six ounces of butter. The increase in the quantity of cream, therefore, is twelve and a half per cent. The experimental farmer will instantly perceive the advantages accruing from its adoption, and probably his attention to the subject may produce greater results. I shall feel richly rewarded if, by exciting an interest on the subject, I can produce any, the slightest improvement in the quantity or mode of producing an article, which may properly be deemed one of the necessaries of life."

To take Impressions from Leaves.—First oil a piece of paper, by rubbing upon it sweet oil, or lamp oil, till the paper is saturated, but none loose on the surface. Second, pass the paper rapidly back and forth through the blaze of a lamp or candle, till it is covered with smoke or lampblack. Third, place the leaf to be represented on the oiled, smoked paper, and over it place another piece of paper, that it may retain its place while it is pressed and rubbed with the fingers. Fourth, remove the leaf from the smoked paper to a clean sheet, and lay over it another piece of paper, and rub it as in the first case, being careful not to let the leaf slip while it is rubbed, which would give a confused or double impression.

MISCELLANY.

GREEK ANTIQUITIES IN AMERICA.

A RECENT discovery seems to afford strong evidence that the soil of America was once trodden by one of Alexander's subjects. A few years since, there was found, near Monte Video, in South America, a stone with the following words in Greek written on it: "During the reign of Alexander, the son of Philip, king of Macedon, in the 63d Olympiad, Ptolemy"—the remainder of the inscription could not be deciphered. This stone covered an excavation, which contained two very ancient swords, a helmet, a shield, and several earthen amphoræ of large capacity. On the handle of one of the swords was the portrait of a man, and on the helmet there was sculptured work representing Achilles dragging the corpse of Hector round the walls of Troy. This was a favourite picture among the Greeks. Probably this Ptolemy was overtaken by a storm in the Great ocean, as the ancients termed the Atlantick, and driven on the coast of South America. The silence of Greek writers in relation to this event may easily be accounted for by supposing that on attempting to return to Greece he was lost together with his crew, and thus no account of his discovery ever reached them.

United Service Journal.

NATURAL CURIOSITY.

IN the great valley between the North and South mountains, in Pennsylvania, commonly called the Eastern ridges, a well was dug some years since in Franklin, and another in Cumberland county, thirty or forty miles from the former, which led to a discovery affording a subject for interesting speculation. After proceeding in each instance to the depth of about thirty-six feet, the bottom of these wells suddenly gave way, (but fortunately when the workmen had retired,) and a torrent of water gushed up. A lead was sunk with fifty fathoms of line without finding the least obstruction! They remain at this time untouched and of unknown depth! The presumption is, that there is a subterranean lake in that quarter, and how far it extends under the base of the vast primitive mountains, situated between the Susquehannah and Pittsburgh, will never be ascertained, unless by some terrible convulsion of nature they should be precipitated in the tremendous abyss.

Allegany Magazine.

MINERAL WEALTH OF MISSOURI.

THERE is a region of country on the Big Black river in the state of Missouri, about eighty miles southwest of St. Louis, which according to recent accounts must be among the wealthiest mineral districts in the United States. In addition to the incalculable quantities of iron ore, of an admirable quality, yielding from seventy to eighty per centum, there is a boundless extent of copper ore, of which thousands of pounds are seen on the surface; in the same region zinc and black lead are abundant, and bells are manufactured in large numbers by smiths residing on the spot, which find a ready sale. Bars of silver are also wrought, of such purity, as to be exchangable weight for weight with silver coin. Gold is also found, in small quantities, while sulphur, saltpetre, lead and mathis are abundant. A railroad is talked of to be run from some undetermined point on the Mississippi, into the heart of the mineral region.

OSAGE ORANGE.—Maclura Aurantiacie.

THE Osage orange is a native of Arkansas and Missouri, where it rises in elegant proportion to the height of sixty feet. The tree is deciduous and hardy, as it has endured the rigours of the last seven winters, near Boston, and is one of the most ornamental of all our native trees. The leaves are oval, lanceolate, of a beautiful shining green, and bear a striking resemblance to those of the orange, and the wood like the orange, is armed with long sharp spines. The trees are diœcious, or some male and some female, therefore requiring more than one tree for the production of fruit; but these, however, cannot be distinguished when young. The fruit is beautiful, but not eatable, of the size of a large orange, of a golden colour, and the trees when laden with the fruit are splendid. The wood produces a fine yellow die. It is valuable for furniture, as it receives the finest polish. It is remarkably tough, strong, and elastick, and is therefore called *bow-wood*, being preferred by the Indians to all other wood for bows. It is also supposed to be the most durable timber in the world, and for ship-building is esteemed preferable to live oak.

On the best authority, I am assured, that the trees of the Osage orange, when set at the distance of fifteen inches asunder, make the most beautiful as well as the strongest hedge-fence in the world, through which neither men nor animals can pass.

CINCINNATI.

CINCINNATI contains at present between thirty and forty thousand inhabitants, and in point of neatness and taste in the architecture of publick and private edifices, is not surpassed by any city of the same population in America. It contains five banks, with an aggregate capital of five millions, six hundred thousand dollars; four ensurance companies and two agencies; two medical colleges; a law school; thirty churches, several of them very beautiful; eighteen common schools, the school-houses nearly all new, spacious, and well finished—attended by about two thousand five hundred children above six years of age, at an average cost for tuition of eight dollars per annum; numerous classical and elementary academies; water-works, with reservoirs for 16,000,000 gallons, and twenty-four miles of large pipes laid in the city for the distribution of water. There are also twenty-three publick cisterns, for the use of the fire department. The number of fire-engines is sixteen, of hose-carriages, eight, having together eleven thousand feet of hose. The manufactures and commerce of Cincinnati are not easily estimated; both are very flourishing. Four daily, one semi-weekly, and eight weekly papers, and four monthly journals, are issued here. Wages for all kinds of mechanical labour are high; the professions are crowded, as elsewhere; and last, not least its editors are as industrious, gifted, honest, patient, long-suffering, and ill-rewarded, as the worthy fraternity abroad.

Cincinnati Mirror.

LITERARY NOTICES.

Koningsmarke, or Old Times in the New World. New edition revised and corrected in two volumes. New York: Harper & Brothers. Koningsmarke forms the seventh and eighth volumes of the uniform edition of Mr. Paulding's works. In their advertisement, the publishers remark, that the productions of Mr. Paulding, extend through a period of more than twenty-five years, and have always ranked among those on which his countrymen rest their literary claims. He commenced his literary career at the same time, and in association with Mr. Washington Irving; and though, in after years, their course was pursued in different hemispheres, it is believed that the same point has been ultimately attained by both, namely, the respect and regard of their countrymen.

One very prominent characteristick, by which it is universally conceded that the productions of Mr. Paulding are uniformly distinguished, is, their national character. The incidents, the personages, the descriptions, and the feelings, are decidedly American. Even in satire, which is by many considered his happiest vein, he is never so pungent, easy, and true, as when ridiculing the vain pretensions of originals from abroad, or the awkward imitations of ambitious copyists at home; while, in descriptive narration, he never seems to write with such pleasure to himself, or with such power of making impressions upon his readers as when portraying the beauty, grandeur, and luxuriance of American scenery, or the unsophisticated character and primitive energies of his countrymen. His works every where convey the impression of his being animated with a deep feeling of affection for his country, and of reverence for her free institutions; in short, it is evident that he writes for his countrymen, and depends on them alone for his reward.

The works already published are the first and second series of Salmagundi, Letters from the South, and Koningsmarke. We hope sincerely that Mr. Paulding's feelings towards his countrymen may be reciprocated, and that every American will embrace this opportunity of procuring the complete works of one who has done honour to his country.

The Old World and the New; or a Journal of Reflections and Observations made on a Tour in Europe. By the Rev. Orville Dewey. Two volumes. New York: Harper & Brothers. A work of great merit, offered to the publick, not as a description merely of places visited, not as an itinerary, but because the author, on his return from the old world, felt desirous of communicating to his countrymen the impressions which arose in his mind, in regard to his native land. To use his own words, "It seemed to him that every traveller to the old world stood on a vantage ground for surveying the institutions, customs, and character of his own country, which might entitle the result of his observation to some regard. There are many subjects of this nature which the spectacle of the old world will force upon the most negligent attention, such as manners, national health, amusements, churches and church establishments, the Catholick religion, the cultivation of the arts, and the many questions in politicks, which are now agitating the civilized world, and which press with peculiar weight upon our own country."

Mr. Dewey has accordingly given us not only his impressions of what he saw abroad, but also remarks upon many subjects intimately connected with our own country, in a spirit of fearless independence, and with good sense. Mr. Dewey's reputation as a writer is already high; the present work will add to his fame.

The Physiology of Digestion, Considered with Relation to the Principles of Dieteticks. By Andrew Combe, M. D. New York: Published by Howe & Bates. This work is essentially a continuation of the book first published about two years since as No. 71 of Harpers' Family Library, and entitled "The Principles of Physiology applied to the Preservation of Health and to the Improvement of Physical and Mental Education;" and its object is the same—namely, to lay before the publick a plain and intelligible description of the structure and uses of some of the more important organs of the human body, and to show how information of this kind may be usefully applied in practical life.

The matters discussed on the present occasion relate chiefly to the function of digestion and the principles of dieteticks: and in selecting them, Mr. Combe has been guided by the same principle as before. And the more we consider the real complication of the function of digestion—the extensive influence which it exercises at every period of life over the whole of the bodily organization—the degree to which its morbid derangements undermine health, happiness, and social usefulness, and especially the share which they have in the production of scrofulous and consumptive, as well as of nervous and mental affections—we shall become more fully convinced of the deep practical interest which attaches to a minute acquaintance with the laws by which it is regulated.

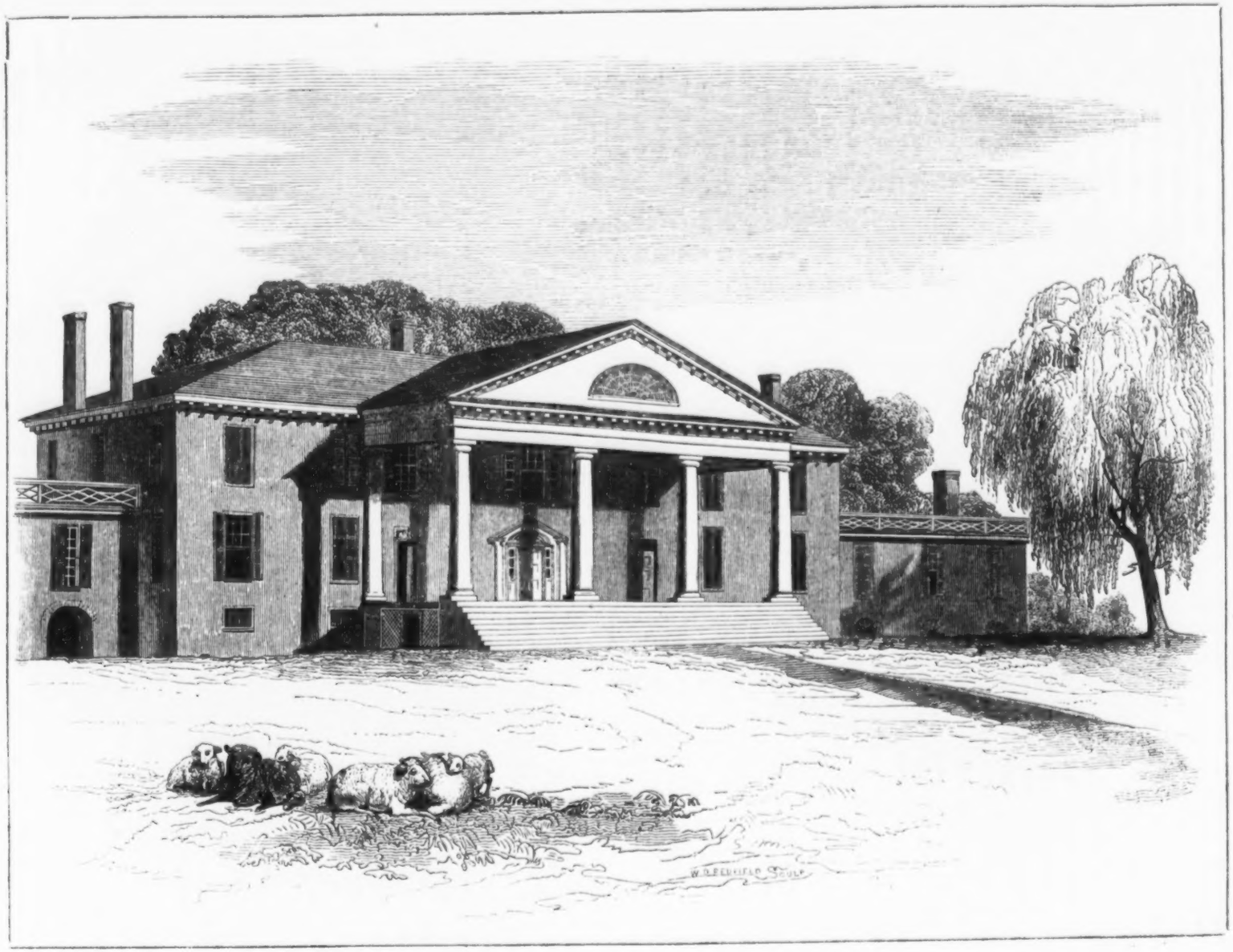
In preparing the present volume, Mr. Combe acknowledges that he has derived the utmost advantage from a valuable work by our countryman Dr. Beaumont, which, Mr Combe says, though scarcely at all known in England, contains an authentick record of some of the most curious and instructive observations which have ever been made on the process of digestion. That excellent and enlightened physiologist had the rare good fortune to meet with a case where an artificial opening into the stomach existed, through which he could see every thing that took place during the progress of healthy digestion; and, with the most disinterested zeal and admirable perseverance, he proceeded to avail himself of the opportunity thus afforded of advancing human knowledge, by engaging the patient, at a heavy expense, to live with him for several years, and become the subject of numerous and carefully conducted experiments. Of the results thus obtained, Mr. Combe has made the freest and most ample use; both because they illustrate almost every point of importance connected with digestion, and because, "from Dr. Beaumont's work being still inaccessible to the British reader, it is a bare act of justice towards him, and also the best way of fulfilling the objects he had in view, to make its contents known as widely as possible: for wherever they are known they will be acknowledged to redound to his credit, not less as a man than as a philosopher."

We have received the first number of the new series of "*Scientifick Tracts, for the Diffusion of Useful Knowledge,*" published by Light & Stearns, Boston. It contains a very valuable essay on "Water," by C. T. Jackson, M. D., a gentleman every way competent to do the subject justice. In future, each number of the tracts will consist chiefly of a well-executed treatise upon a single subject, which arrangement will certainly be better suited for the character of the work.

A Year in Spain. By a Young American. Three volumes. New York: Harper & Brothers. This new edition of a very popular book embraces the *whole* work as originally written, and also contains an entire volume of new matter. The addition of fifteen or twenty pages, never before published, which contain remarks on the present condition of Spain, and the author's opinion of the origin of the present civil war add to the value of the book and render it particularly interesting at this time.

Elkswatawa, or the Prophet of the West. A tale of the frontier. In two volumes. New York: Harper & Brothers. A picture of Indian manners, the main incidents of which are strictly historical and drawn from authentick sources. The author of this tale, resided for some time in the western part of the Union, and having visited many of the Indian tribes on the frontier, observed their manners and customs with great attention. Hence his book, as might naturally be expected, contains much that is interesting in regard to the red sons of the forest.

Physical Theory of Another Life. By the Author of the Natural History of Enthusiasm. D. Appleton & Co., New York. In the preface to this work, the author remarks that there are two perfectly distinct modes in which the influence of the highest truths may be increased; the one is to remove so far as it may be done the prejudices and perversions that have been amassed around them. The other method is, forgetting any incidental causes of obstruction, to hold forth in its native brightness the substance of these truths. In this work the author has attempted the second and we should think with success.



[Late Residence of Ex-President Madison, Montpelier, Va.]

MONTPELIER.

The frontispiece of the present number represents the seat of the late lamented Ex-president Madison.

Montpelier is about four miles distant from Orange courthouse. On approaching it from the north, you turn to the left on leaving the main road, and after proceeding through a wood about a mile, the mansion of the ex-president may be seen a mile distant, situated on a slight eminence. It is a large brick building, composed of a main body and two wings. In front of the body, is a portico of wood, painted white, which is supported by four lofty Dorick pillars. The interiour of the house is furnished with plain, but rich furniture, and ornamented with busts and pictures; in the right wing is a library of rare and valuable books, and a cabinet. In the rear of the mansion is an extensive lawn: after crossing this, you come to the garden, which consists of several acres of ground, laid out with elegance and taste, and contains a great number of native plants and exoticks, and an abundance of grapes.

Here, on the twenty-eighth of June, 1836, the venerable Madison expired, at the advanced age of eighty-seven, lamented deeply by his numerous friends, and by the whole American people, as a national loss. The following sketch of his life is from the pen of one who had passed many pleasant hours in his society, and is copied from the New York Mirror:—

"Great occasions produce great men. The records of our own country bear testimony to this truth. In the early and in the later ages of her struggles, there were not wanting men to advise and to act for a nation's welfare. Among those who have acted a conspicuous part in building up our political and civil institutions, for more than sixty years, was James Madison, who has lately sunk to rest, full of years and honours.

"Mr. Madison was by birth a Virginian, and wholly educated in this country. He was intended for a statesman from his youth, and made himself master of constitutional law, when it was hardly known as a science either in England or in this country. He was born on the sixteenth of March, 1751, and, of course, was in all the ardour and freshness of youth on the breaking out of the revolution. In 1775, Mr. Madison was a member of the legislature of Virginia, and at that early age, was distinguished for his maturity of understanding and sage prudence. He was soon appointed one of the council of the state. During the whole eventful struggle, James Madison had the confidence of the state of Virginia; and, as a member of her legislature, was listened to with profound attention when he brought forward sundry resolutions for the formation of a general government for the United States, based upon the inefficiency of the old confederation. From these resolutions grew a convention of delegates from the several states, who, in conclave, prepared a form of a constitution to be submitted to the several states for their discussion, approbation, and adoption. Mr. Madison was a member of this convention, as a delegate from Virginia, and took an active part in the deliberations of that enlightened body, of which Washington, his colleague, was president. On the adoption of this constitution—a wonderful era in the history of the liberties of man—Mr. Madison was elected a member of the first congress, and took an active part in setting the machinery in motion. At this period publick opinion was greatly agitated by the crude and false opinions scattered through the country, through the medium of the opposition presses; this was grievous to the friends of the constitution, and three mighty minds, Jay, Hamilton, and Madison, formed a holy alliance to enlighten the people upon the great doctrines of the constitution, and breaking through the host of the Philistines, drew the pure waters of truth for the good of the people. The essays from the pens of these worthies, were collected in a volume, called the Federalist, which now stands a monument of the wisdom and patriotism of that age. In the debates of the first congress, Mr. Madison took a large share. It was an illustrious assemblage of patriots, among whom there often arose a difference of opinion in regard to political policy, but all were lovers of their country, and labouring for her best interests. Here Mr. Madison acted with the Cabots and the Ames' of the east, in perfect harmony. It was reserved for an afterage to feel the withering effects of party-feuds. These were hardly discovered as long as the father of his country filled the presidential chair. In the administration of his successor, a separation into parties took place, and Mr. Madison ranked himself on the side of Mr. Jefferson and his party. During the presidency of Mr. Jefferson, Mr. Madison was secretary of state, and sustained that office with singular ability. He held a ready pen, had a clear, philosophical perception of the great principles on which the government professed to act, and could readily produce a defence of the course pursued. No secretary ever did, or ever will do more by force of argument, than Mr. Madison, while supporting the measures of Mr. Jefferson.

"In March, 1809, Mr. Madison became president of the United States. It was a stormy period. France and England, in their fierce struggles for mastery, forgot the rights of neutral nations, and outraged our independence. Insult followed insult from both countries, for the three first years of his administration; but he was, from the very elements of his nature, inclined to peace, and had not urged preparations for war. In 1812, war was declared without preparation, and the Executive of the United States had a difficult task to perform. A powerful part of the people were opposed to the war, some for one reason, and some for another, and it required no small degree of moral courage, to steer the ship of state at such a crisis. Mr. Madison was not a military chieftain, and took no pleasure in the glories of a victory, no farther than they were beneficial to the interests of his country; but his moral courage was of the highest order, that which arises from a consciousness of an intention of doing good. There can be no doubt but that so sagacious a statesman as Mr. Madison, saw some of the blessings that were to flow to his country from the evils of war. He knew that nations, at times, hold incorrect opinions, and that the rude shocks of war are the only remedies for these errours. The war had its dark and bright spots on the tablets of fame, but its results were altogether fortunate. The necessity of a navy for national honour and protection, anchored itself

into the firm bosom of every patriot, with such a hold as to ride out every billow and whirlwind of faction. By this war we were taught that no nation could ever claim to be independent whose resources were confined to agriculture and commerce alone. By this war we became a manufacturing people to a respectable extent; but there was as much opposition to this as there was to the war. This goes to show, that it is beyond human reason to foresee what may be best; but all will agree that there should always be wisdom and honesty at the head of our people to make the most judicious use of every event.

"In 1817, when the reign of peace was established, Mr. Madison retired to his farm to enjoy the serenity of rural life; but here he has not been idle. On the death of Mr. Jefferson, he was made chancellor of the University of Virginia, and, as well as his predecessor, took a deep interest in the prosperity of the institution. When Virginia called a convention to alter her constitution, Mr. Madison, with Chief-Justice Marshall, and Mr. Monroe, were found among the sages who had witnessed the birth of that constitution, and were well acquainted with its excellences and defects, and were good judges of the best forms of amendment. Seven or eight years ago, a bookseller at Washington, got up an edition of the debates in the several conventions called by the states in 1787 and 1788, to deliberate on the adoption of the constitution of the United States. Mr. Madison took a lively interest in this publication, and afforded the editor all the information that he possessed upon the subject.

"Mr. Madison was unquestionably the leading member in the Virginia convention, called for the adoption of the constitution of the United States, although there were several distinguished men among them. This body was fortunate enough to have employed a reporter of eminence for the occasion, which was not the case in many other states; and what the Virginian reporter did not put down in his notes, Mr. Madison's minutes and recollections most readily supplied.

"In the convention he had to meet the blaze of Patrick Henry's eloquence, the subtile arguments of Mason, and the chilling doubts of Monroe; but all were overcome by the clearness of his views, and the force of his reasonings. Mr. Madison was not an orator in the common acceptation of the word; there were no deep tones in his voice; no flashes of a fierce and commanding eye; no elegant gestures to attract the beholder; all was calm, dignified, and convincing. It was the still, small voice, in which the oracles of God were communicated to the prophet. He never talked for the love of display, but simply to communicate his thoughts. He spoke often in debate, when earnest in his cause, but was always heard with profound attention; not a word of his speeches were lost. He was so perfectly master of his subject, that he had nothing to correct in a retrospective view of it, and was so well understood, that he had nothing to explain. His voice was deficient in volume, but it was so well modulated, that its compass was more extensive than that of many speakers of stronger lungs. His conversation was truly a charm. He was familiar with most topicks, and he loved both to communicate and receive information. He lived in times when men grew up with strong prejudices and partialities; but his most familiar guests seldom heard a sentence tinged with them, either at his table or fireside. For nearly twenty years he has been daily preparing for the change of worlds, and at last sunk into the arms of death in as peaceful a sleep as a babe on the bosom of his mother. Nature and religion had cured him of all fears of the grave; he had no dread of what 'dreams might come when he had shuffled off this mortal coil.' He had no enmities to settle, for he had quarrelled with no one; he had no slanders to forgive, for no one ever traduced him. His history contains, indeed, a miracle, for there has not been one of mortal, or of immortal birth, who has acted a conspicuous part on this earth, but James Madison, whose private reputation has not been assailed."

FABLES.

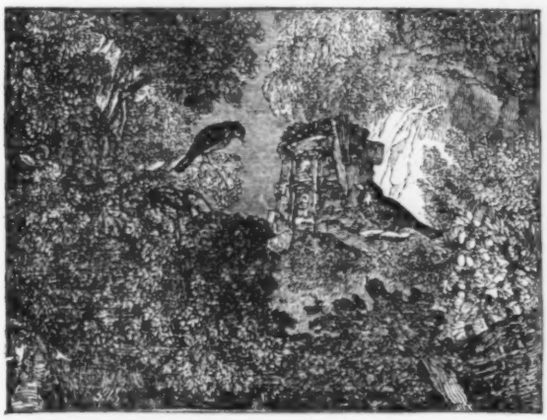
THE BEE AND THE ANT.

VIOLENT dispute once arose between the bee and the ant, each claiming superiority for prudence and industry; and, as neither of them would give up the point, they mutually agreed to defer the decision of this great question to the decree of Apollo, who was fortunately at hand tending the cattle of Admetus. Accordingly approaching the god, each made out his title to a preference with all the eloquence which a bee or an ant had ever been master off. When Apollo gave judgment thus:—"I consider you both as most excellent examples of industry and prudence. You," said he, addressing the ant, "by your care, your foresight, and your labour, make for yourself an ample provision in time of need; thus independent, you never intrude on or tax the labours of others for help: but recollect, at the same time, that it is yourself alone that you benefit; no other creature ever shares any part of your hoarded riches. Whereas the bee produces, by his meritorious and ingenious exertions, that which becomes a blessing to the world. Therefore I must give my judgment in favour of the bee."

APPLICATION.

That man deserves the thanks of his country who connects with his own, the good of others. The philosopher enlightens the ignorant; the manufacturer

employs the needy; and the merchant gratifies the rich, by procuring them the rarities of every clime. But the miser, although he may be no burden on society, yet, thinking only of himself, affords to no one else either profit or pleasure. As it is not the lot of any one in this world to have a very large share of happiness, that will of course have the largest portion who makes himself a partner in the happiness of others. The benevolent are sharers in every one's joys.

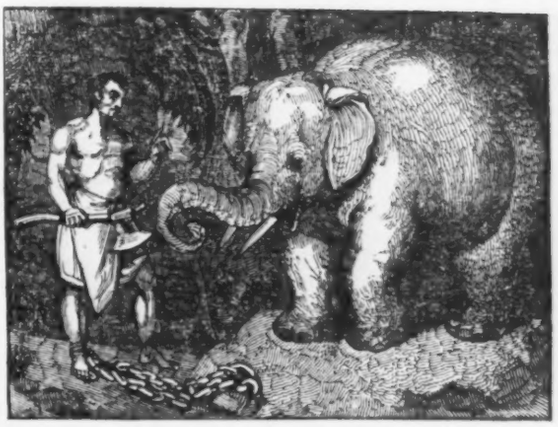


THE REDBREAST AND THE SPARROW.

ERCH'D on a tree, hard by a rural cot,
A redbreast, singing, cheer'd the humble spot;
A sparrow on the thatch, in critick spleen,
Thus took occasion to reprove the strain:—
"Dost thou," cried he, "thou dull dejected thing,
Presume to emulate the birds of spring?
Can thy weak warbling dare approach the thrush
Or blackbird's accents in the hawthorn bush?
Or with the lark dost thou, poor mimick, vie,
Or nightingale's unequall'd melody?
These other birds possessing twice thy fire,
Have been content in silence to admire."
"With candour judge," the minstrel bird replied,
"Nor deem my efforts arrogance or pride;
Think not ambition makes me act this part,
I only sing because I love the art;
I envy not, indeed, but much revere
Those birds whose fame the test of skill will bear:
I feel no hope aspiring to surpass,
Nor with their charming songs my own to class;
Far other aims incite my humble strain;
Then surely I your pardon may obtain,
While I attempt the rural vale to move,
By imitating of the lays I love."

THE ELEPHANT AND THE SLAVE.

N elephant, in his progress through the forest, saw a slave felling trees, and linked by a chain to a log of wood, to prevent his escape. "I see clearly," said the elephant, "that you are a slave by your equipment, an indication also of your past bad conduct, which has brought you to disgrace."—"True," said the slave, "but notwithstanding my degraded state, I am still your superiour."—"In one quality," replied the elephant, "you have the advantage most supremely, and which mankind possess alone, in contradistinction to all other animals in the creation. I mean the power of being able to console themselves by self-adulation and flattering conceit, even when under the most degrading circumstances, or when steeped in vice: not once recollecting that it is manners make the man."



[The Elephant and the slave.]

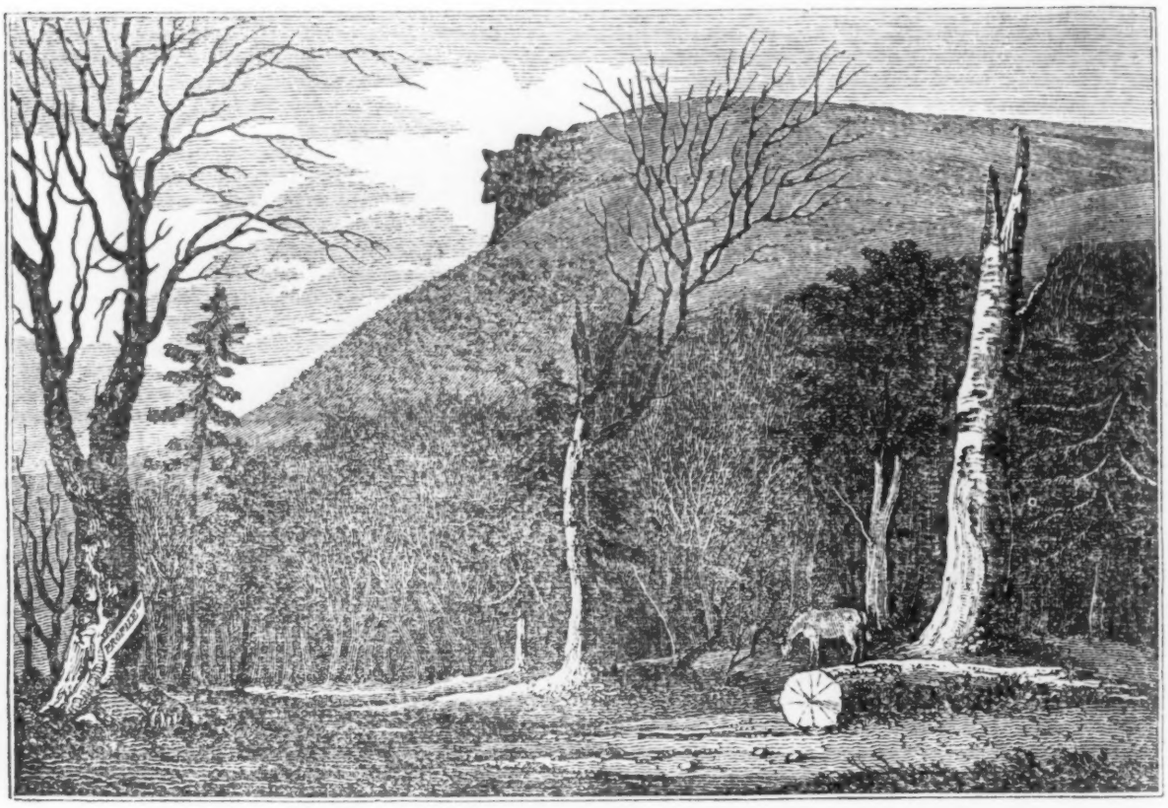
APPLICATION.

It is curious to observe by what ingenious sophistry and artful care we endeavour to screen from our sight and conviction the odiousness of many of our qualities, instead of boldly facing them, in order to descry their deformity, which would raise our hatred and force us to correct them. On the contrary, by this blind indulgence, we give strength to vice, till at last it gains the mastery over us and ends in our ruin. Would that there were mirrors for the mind as well as for the face. The understanding is often deceived, because there is nothing to represent it truly; and every judge of himself, being seduced by inclination, will always find some loophole or other to evade censure. Self-love makes us put on spectacles, to see the things larger that concern ourselves.

[For the Family Magazine.]

AMERICAN LANDSCAPE.

How numerous and varied the forms assumed by nature; and to be seen by the careful observer, in stones, and shells, and fruits, and flowers, as also in other natural productions. Perhaps her phantasies are more common in the mineral kingdom, and many cases of their occurrence are recorded; for instance, the following: During the French revolution, immediately after the unfortunate Louis was beheaded, a very remarkable portrait of this monarch was discovered distinctly marked in a piece of Labrador spar, and so accurate was the likeness, and so curious was this coincidence reckoned at the time, that a very large sum of money was obtained for it; facsimiles were engraved from it, and worn as rings by his partisans. In the British museum, is an agate, on which is portrayed an accurate likeness of Chaucer. At the present time we have before us a view of a profile, found in the fracture of a nodule



[The Old Man of the Mountain.]

of flint, and which, slight as is our acquaintance with the prominent personages in Europe, we immediately pronounced to be the profile of the Duke of Wellington. The figure in the stone, it is said, has somewhat the appearance of an enamel painting, the figure being of a whitish gray substance, surrounded by a dark-gray ground: and when the stone was slit up near its centre, two other profiles were seen which resembled the face of the present king.

Sometimes nature shows these freaks on a larger scale. Any one who has been upon the North river, must doubtless have been struck with that prominent point in the Highlands, termed *Anthony's Nose*. The *Camel's Hump* too, on the White mountains, is said to bear a striking resemblance to the real object. But perhaps the most singular thing of this character, is the "*Old Man of the Mountain*," figured at the head of this article. This is found in the Franconia notch, which is a continuation of the range of the White mountains. It presents an exact colossal representation of the human face, as seen in profile, surmounted by a helmet. This face is delineated by the hand of nature, on the brow of a bare rock nearly one thousand feet high. No art could improve the effect, nor could any attempt be made to assist it, for the profile being seen perfect from only one point, the least deviation throws every thing into a confused mass. The upper part of the rock too, upon which it appears, is perfectly inaccessible.

THEY who are most impetuous in the pursuit of happiness, usually meet with the severest disappointments. Happiness enters most freely into the mind which is the most tranquil in its desires.

THE MOTHERS OF THE WEST.

"A spirit so resolute, yet so adventurous—so unambitious, yet so exalted—a spirit so highly calculated to awaken a love of the pure and the noble, yet so uncommon—never before actuated the ancestral matrons of any land or clime."

THE mothers of our forest-land!
Stout-hearted dames were they;
With nerve to wield the battle-brand,
And join the border-fray.
Our rough land had no braver,
In its days of blood and strife—
Aye ready for severest toil,
Aye free to peril life.
The mothers of our forest-land!
On Old Nan-tuc-kee's soil,
How shared they, with each dauntless band,
War's tempest, and life's toil!
They shrank not from the foeman—
They quailed not, in the fight—
But cheered their husbands through the day,
And soothed them through the night.
The mothers of our forest-land!
Their bosoms pillowed *men!*
And proud were they by such to stand,
In hammock, fort, or glen.
To load the sure old rifle—
To run the leaden ball—
To stand beside a husband's place,
And fill it should he fall.
The mothers of our forest-land!
Such were their daily deeds,
Their monument!—where does it stand?
Their epitaph!—who reads?
No braver dames had Sparta,
No nobler matrons Rome—
Yet who lauds, or honours them,
E'en in their own green home?
The mothers of our forest-land!
They sleep in unknown graves:
And had they borne and nursed a band
Of ingrates, or of slaves,
They had not been more neglected!
But their graves shall yet be found,
And their monuments dot here and there
"The dark and bloody ground."

Western Literary Journal.

[Buffalo.]

LIFE IN THE WEST.

The following vivid description of a buffalo-hunt, is from Washington Irving's tour on the prairies. Mr. Irving remarks:—

Having made two or three ineffectual shots from horseback, we determined not to seek the camp until we had made one more effort. Casting our eyes about the surrounding waste, we descried a herd of buffalo about two miles distant, scattered apart, and quietly grazing near a small strip of trees and bushes. It required but little stretch of fancy to picture them so many cattle grazing on the edge of a common, and that the grove might shelter some lowly farmhouse.

We now formed our plan to circumvent the herd, and by getting on the other side of them, to hunt them in the direction where we knew our camp to be situated; otherwise, the pursuit might take us to such a distance as to render it impossible for us to find our way back before nightfall. Taking a wide circuit therefore, we moved slowly and cautiously, pausing occasionally, when we saw any of the herd desist from grazing. The wind fortunately set from them, otherwise they might have scented us and have taken the alarm. In this way, we succeeded in getting round the herd without disturbing it. It consisted of about forty head, bulls, cows and calves. Separating to some distance from each other, we now approached slowly in a parallel line, hoping by degrees to steal near without exciting attention. They began, however, to move off quietly, stopping at every step or two to graze, when suddenly a bull that, unobserved by us, had been taking his siesta under a clump of trees to our left, roused himself from his lair, and hastened to join his companions. We were still at a considerable distance, but the game had taken the alarm. We quickened our pace, they broke into a gallop, and now commenced a full chase.

As the ground was level, they shouldered along with great speed, following each other in a line; two or three bulls bringing up the rear, the last of whom, from his enormous size and venerable frontlet, and beard of sunburnt hair, looked like the patriarch of the herd; and as if he might long have reigned the monarch of the prairie.

There is a mixture of the awful and the comick in the look of these huge animals, as they bear their great bulk forward, with an up-and-down motion of the unwieldy head and shoulders; their tail cocked up like the queue of Pantaloon in a pantomine, the end whisking about in a fierce yet whimsical style, and their eyes glaring venomously with an expression of fright and fury.

For some time I kept parallel with the line, without being able to force my horse within pistol-shot, so much had he been alarmed by the assault of the buffalo, in the preceding chase. At length, I succeeded, but was again balked by my pistols missing fire. My companions, whose horses were less fleet, and more wayworn, could not overtake the herd; at length, Mr. L. who was in the rear of the line, and losing ground, levelled his double-barrelled gun, and fired a long raking shot. It struck a buffalo just above the loins, broke its backbone, and brought it to the ground. He stopped and alighted

to despatch his prey, when borrowing his gun which had yet a charge remaining in it, I put my horse to his speed, again overtook the herd which was thundering along, pursued by the count. With my present weapon there was no need of urging my horse to such close quarters; galloping along parallel, therefore, I singled out a buffalo, and by a fortunate shot brought it down on the spot. The ball had struck a vital part; it would not move from the place where it fell, but lay there struggling in mortal agony, while the rest of the herd kept on their headlong career across the prairie.

Dismounting, I now fettered my horse to prevent his straying, and advanced to contemplate my victim. I am nothing of a sportsman: I had been prompted to this unwonted exploit by the magnitude of the game, and the excitement of an adventurous chase. Now that the excitement was over, I could not but look with commiseration upon the poor animal that lay struggling and bleeding at my feet. His very size and importance, which had before inspired me with eagerness, now increased my compunction. It seemed as if I had inflicted pain in proportion to the bulk of my victim, and as if there were a hundred fold greater waste of life than there would have been in the destruction of an animal of inferiour size.

To add to these after-qualms of conscience, the poor animal lingered in his agony. He had evidently received a mortal wound, but death might be long in coming. It would not do to leave him here to be torn piecemeal, while yet alive, by the wolves that had already snuffed his blood, and were skulking and howling at a distance, and waiting for my departure, and by the ravens that were flapping about, croaking dismally in the air. It became now an act of mercy to give him his quietus, and put him out of his misery. I primed one of the pistols, therefore, and advanced close up to the buffalo. To inflict a wound thus in cool blood, I found a totally different thing from firing in the heat of the chase. Taking aim, however, just behind the fore-shoulder, my pistol for once proved true; the ball must have passed through the heart, for the animal gave one convulsive throe and expired.

While I stood meditating and moralizing over the wreck I had so wantonly produced, with my horse grazing near me, I was rejoined by my fellow-sportsman, the virtuoso; who, being a man of universal adroitness, and withal, more experienced and hardened in the gentle art of "venerie," soon managed to carve out the tongue of the buffalo, and delivered it to me to bear back to the camp as a trophy.

BIOGRAPHY.

HERNANDO CORTEZ.—Born, 1483—Died, 1554.

Hernando Cortez, a descendant of a noble but poor family, was born at Medellin, in Estremadura, in 1483. The law, to which he was bred at Salamanca, he quitted for a military life. In 1504, he went to St. Domingo, and, in 1511, accompanied Velasquez to Cuba, and received from him a grant of land, as a reward for his services. The conquest of Mexico being resolved upon, Velasquez intrusted him with the command of the enterprise. The expedition, which consisted of ten small vessels, and only seven hundred men, sailed on the 18th of November, 1518; and, on his arrival at Tabaco, Cortez set fire to his ships, that his soldiers might have no other resource than their own valour. The Tlascalans he conquered and converted into allies, and then advanced towards Mexico, where he was amicably received. Jealous of his success, Velasquez now sent Narvaez to supersede him, but Cortez marched against the latter, took him prisoner, and gained over the new-come troops. The conduct of Cortez to the natives soon produced hostilities, and he was driven from Mexico. By the decisive victory of Otumba, however, he resumed the ascendency, and, after a long siege, in which perished 100,000 Mexicans, he regained possession of the capital, and finally subjugated the whole of the kingdom. In 1536, he commanded in person a fleet which discovered California. Charles V., while under the impulse of gratitude, created him governour and captain-general of Mexico, and marquis of Guaxaca; but he subsequently removed him him from the governourship. In order to obtain justice, Cortez, in 1540, returned, for the second time, to Spain; and he accompanied the emperour to Algiers, where he highly distinguished himself. Yet he was unable to procure even an audience. "Who are you?" exclaimed Charles, when Cortez had on one occasion, forced his way to the step of the emperour's carriage. "I am one," replied the undaunted warriour, "who has given you more provinces than your ancestors left you towns." Cortez died at Seville, in comparative obscurity, on the 2d of December, 1554.

Such is a brief account of the life of this remarkable man. We shall close our biography of him, with a description of the city of Mexico, at the time of Cortez's conquest, which will give our readers a slight idea of its magnificence.

The city of Mexico, which contained sixty thousand families, was divided into two parts, one of which, called Tlatelulco, was inhabited by the meaner sort, while the court and nobility resided in the other, which had the appellation of Mexico, which from thence was given to the whole city.

It stood in a spacious plain, surrounded by high rocks and mountains, from which many rivulets falling down into the valley, formed several lakes, and among these were two that extended about thirty leagues in circumference, and were surrounded by fifty towns. These lakes communicated with each other, through openings left in a stone-wall, by which they were divided, and over these openings were wooden bridges, with sluices on each side, by which the lower lake was supplied from the other: the water of the uppermost was fresh, while that of the lower was salt, a circumstance proceeding from the nature of the soil.

In the middle of the lake, stood the city of Mexico, in nineteen degrees thirteen minutes north latitude, yet the climate was mild and healthy; for the natural moisture of the situation was corrected by frequent breezes of wind.

It was joined to the main land by three noble causeways; the streets were large and straight, and had a great number of canals for the convenience of water carriage, in canoes and barks of various sizes above fifty thousand of which vessels belonged to the city.

All the publick buildings and houses of the nobility were stone, and even the habitations of the com-

mon people, though more mean and irregular, were disposed in such a manner as to form several large courts, in which their merchandise was exposed for sale.

The square of Tlatelulco, in which they kept fairs on particular days of the year, though one of the largest in the world, was, on these occasions, quite filled with tents, containing a variety of goods, and covered with coarse cotton cloths, which were proof against sun and rain.

Here they sold by barter, jewels, chains of gold, and different utensils of silver curiously wrought, together with paintings, landscapes made of feathers beautifully arranged, different sorts of cloths, drinking cups of a kind of porcelain, fruit, fish, and all manner of provisions. Maize or cocoa served as money for small value; they had no weights, but a variety of measures; and instead of numbers, certain characters, by which they adjusted the prices of goods. There was a house appointed for judges of commerce, who decided all differences arising among the merchants, and these appointed inferiour officers to maintain justice and good order in the fair.

Their temples were magnificent and spacious, particularly that dedicated to Vitziputzli, their god of war, who was esteemed the supreme of all their deities. The first part of this edifice was a great square, enclosed within a wall of hewn stone, on the outside of which were cut wreaths of serpents.

At a little distance from the principal gate, was a place of worship, with a flat roof, in which were fixed many trunks of trees in a row, with holes bored in them at equal distances, through which passed several bars run through the heads of men who had been sacrificed.

On each side of the square, was a gate over which stood four statues of stone, representing inferiour deities, to whom the people on their entrance paid reverence; and though the dwellings of the priests and their attendants were built on the inside of this wall, there was space sufficient for ten thousand people to dance on their solemn festivals.

In the middle of the square stood a lofty stone tower, having a staircase of one hundred and twenty steps, by which people ascended to the top, which formed a flat pavement forty feet square, beautifully paved with jasper, and surrounded with rails of a serpentine form. At the top of these stairs stood two marble statues well executed, supporting two large candlesticks of an extraordinary fashion.

A little farther was a green stone, about three feet high, and terminating in an angle, on which the priests extended the wretched victim while they opened his breast and plucked out his heart. Beyond this stone, fronting the staircase, stood a chapel of admirable workmanship, in which was placed the idol, upon a high altar, surrounded with curtains. It was of the figure of a man, sitting in a chair, sustained by a blue globe furnished with four rods jetting out from the sides, each terminating in the likeness of a serpent's head; and these rods the priests placed on their shoulders when they exposed the idol to the view of the publick. The head of the figure was covered with a helmet, composed of plumes in the form of a bird, with a bill and crest of burnished gold.

The countenance of this idol was horrible, the

[Hernando Cortez.]

nose and forehead being swathed with bands of a blue colour: in the right hand it held a curling serpent, and in the left a shield of four arrows, with five white plumes placed in the form of a cross, and the Mexicans related many extravagant stories respecting these ornaments.

There was placed on the left hand of this idol, another of the same size and form, made for Talocle, the supposed brother of the former, and equally revered by the Mexicans. The ornaments of these chapels were of inestimable value, and there were in the city, eight temples built nearly in the same manner, and almost as rich: those of a similar size amounted to two thousand, dedicated to as many idols of different names.

Besides the palace in which Montezuma kept his court, he had several magnificent pleasure houses, in one of which, a most elegant building supported by pillars of jasper, he kept an aviary of birds, remarkable either for their singing or plumage, so numerous, that three hundred men were employed in attending them.

Not far from this was another vast edifice, where the emperour's fowlers resided, and took care of the birds of prey, among which were some bred to the game like our hawks, and in the same place were voracious eagles of a very extraordinary size. In the second square of this house his wild beasts were kept, consisting of bears, tigers, lions, and Mexican bulls, which are extremely strong, nimble and fierce: and over their dens was a large apartment for buffoons and monsters, who were kept and instructed for the entertainment of the emperour.

Montzeuma's grandeur was equally conspicuous in his armories. In one building a number of workmen were employed in making shafts for arrows, grinding flints for the points, and forming all sorts of arms, offensive and defensive; in another building the arms were laid up in great order; these consisted of bows, arrows and quivers, two-handed swords, edged with flints, darts and javelins, head-pieces, breastplates, quilted jackets, and bucklers made of

impenetrable skins to cover the whole body, which they carried rolled upon their shoulders till they were ready to engage. To all these buildings there were large gardens well cultivated, producing a great variety of fragrant flowers and medicinal herbs set in squares, and adorned with beautiful summer-houses and fountains of water.

But of all Montezuma's buildings, the most remarkable was his house of sorrow, to which he retired on the death of any favourite relation, or in case of publick calamity: this place was very well adapted to promote gloomy sentiments; the walls, roofs, and ornaments were black; instead of windows, it had only narrow openings in the walls, which admitted no more light, than was just sufficient to make the whole place appear more dismal.

The emperour had also several pleasant country-seats, with large forests for the chase of lions and tigers, in which he took great delight. In these sports a number of men were employed to surround the game, and contract the circle into a certain space, where he beheld the combats of his huntsmen with the wild beasts, in which exercise the Mexicans were not less daring than dexterous.

Montezuma had two sorts of guards, one of common soldiers who filled the courts of the palace, and were posted in bodies at the principal gates: the other consisted of two hundred nobles of distinguished rank, who were obliged to attend every day at the palace, to guard his person.

This attendance of the nobility was divided between two bodies, who were upon duty by turns, comprehending the lords of the whole empire, who were obliged to repair to court from the most distant provinces; a scheme contrived by Montezuma, who thereby kept the nobility in dependance, and had an opportunity of becoming acquainted with their persons, capacities, and dispositions.

He very seldom granted audience, and when any one was so far honoured, he entered barefoot, and made three reverences, saying at first, "lord," at the second, "my lord," and at the third, "great lord." He appeared in great state on these occasions, being surrounded by his courtiers; he listened attentively, and answered with severity, seeming delighted with the confusion of the speaker.

Montezuma frequently dined in publick, but always sat alone at the table, which was usually covered with upward of two hundred dishes of different meats; out of which he fixed on a certain number for his own use, and ordered the rest to be divided among the nobility. He sat on a little stool at a large low table, which was covered with napkins and cloths of fine cotton. His dining-room was divided in the middle by a rail, which, without obstructing the view, kept the domesticks and crowd at a distance. Within the rails he was attended by three or four old favourite servants: the dishes were brought in by twenty women, richly dressed, who served up the meat, and presented him with the cup: the dishes, which were of fine earthen ware, as well as the cloths and napkins, having been once used, were distributed among the servants: he had cups and salvers of gold, and sometimes drank out of cocoa and other shells, richly ornamented with jewels.

He drank several sorts of liquors, one of which was a kind of beer made of maize; others were perfumed with rich odours, and a third sort mixed with the juice of salutiferous herbs. After eating, he drank a kind of chocolate, and used to smoke a sort of tobacco perfumed with liquid amber: indeed the juice of this herb was one of the ingredients with which the priests wrought themselves up to a fit of enthusiasm, whenever they were obliged to deliver an oracular answer.

Among other attendants at his table, were generally three or four buffoons, who diverted him with their ludicrous talents, and at proper intervals he was entertained with musick produced by pipes and seashells, accompanied by voices that formed an agreeable concert. The subject of these songs was generally the exploits of their ancestors, and the memorable actions of their kings. They had also merry songs used in dancing, accompanied with the musick of two little drums, made of hollow pieces of wood of different sizes and sounds: these were most commonly used in a dance called Mitates, practised at festivals, in which the nobility and the vulgar, mingling without distinction, used to shout, make odd gesticulations, and drink to each other till they were drunk.

The people, at other times assembling in the squares and porches of the temple, made matches for wrestling, shooting at the mark, and running races. Here were also rope-dancers, performing in an astonishing manner, without the assistance of poles, and numbers of people playing at ball, near the statue of an idol, which the priests brought out, as the superintendant of that diversion. In a word the inhabitants of Mexico were almost every day entertained with shows and amusements, contrived by Montezuma, to divert their imaginations, which might otherwise have been employed to his disadvantage.

The prodigious wealth of Montezuma, which enabled him to support the expense of his court, and to keep two large armies always in the field, arose from the salt-works and other taxes, established from time immemorial, from the produce of the gold and silver mines, and from the contributions levied on the subject, amounting to one third of the annual produce of that vast and populous empire. These taxes were collected by officers depending on the tribunal of the royal revenue, that resided in the court, and punished the least neglect or fraud with the loss of life.

All the towns in the neighbourhood of Mexico furnished fuel for the royal palace, and men for the emperour's works. The nobility were obliged to guard his person, to serve in his army with a stipulated number of vassals, and to make him many presents, which though he received as gifts, they durst not neglect to offer. He had different treasurers for the several kinds of contributions; and the tribunal of the crown-revenue, having issued out what was wanted for the expenses of the war, and the royal palaces, converted the rest into ingots of gold.

Besides this tribunal, there was a council of justice, which received appeals from inferiour courts; a council of state, a council of war, judges of commerce, and other officers, each of whom carried a staff as a badge of distinction.

As the Mexicans had no written laws, but were governed by the customs and institutions of their ancestors, their trials were short and verbal; murder,

theft, adultery, and any disrespect, even the slightest, towards the emperour, were capital crimes, and punished with death; but all other misdemeanors found an easy pardon.

The children of the common people were instructed in publick schools, and those of the noble in well-endowed colleges, where they passed through three classes; in the first of which they were taught to decipher the characters and hieroglyphicks, and to repeat the historical songs; in the second they learned to acquire a modest, civil, and polite deportment; and in the third they were employed in robust exercises, as wrestling, managing their arms, and carrying weights; and inured to the hardships of suffering hunger and thirst, and bearing the inclemencies of the weather. These qualifications being acquired, the young noblemen who were designed for war, were sent as volunteers to the army, to accustom themselves to the dangers and hardships of a campaign, and were often placed among the baggage-men, and loaded with provisions, to mortify their pride and inure their bodies to fatigue, before they were enrolled as soldiers, an honour to which none were admitted, who had not given proofs of their intrepidity.

In every town there was a regular militia, so that their armies were formed with ease; for the princes, caciques, and governours, were obliged to repair to the rendezvous, with a certain number of soldiers. Their troops were better disciplined than those of the other Indian nations; and the emperour, with a view to reward acts of valour, instituted several orders of knighthood.

It has been asserted, as a proof of the grandeur of the Mexican empire, that Montezuma had thirty vassals, each of whom could bring one hundred thousand armed men into the field.

The Mexican year, like ours, consists of three hundred and sixty-five days, but was divided into eighteen months, of twenty days each, and at the end of the year five days were added to make it answer the course of the sun, and these were entirely appropriated to pleasures and diversions. They had likewise weeks of thirteen days, to which were given different names; and a longer period, called ages, which consisted of four weeks of years.

This period of time was represented in a very singular manner: in the centre of a large circle, divided into fifty two degrees, allowing a year for every degree, they painted the sun, from whose rays proceeded four lines of different colours, which equally divided the circumference, leaving thirteen degrees to each semi-diameter; and these divisions served as signs of their zodiack, upon which the ages had their revolutions, and the sun his aspects, adverse or prosperous, according to the colour of the line. In a larger circle which enclosed the other, they marked with their characters the principal occurrences of the age, and these secular annals were considered as publick instruments, serving for proofs of their history.

The Mexican marriages were celebrated in the following manner: the contract being settled, the parties appeared in the temple, and the priest having examined them respecting their mutual passion, tied the tip of the woman'a veil, and the corner of the bridegroom's garment together, and accompanied them, joined in this manner, to their dwelling, where they went round the fire seven times, and then sitting down to receive a share of the heat, the marriage was accomplished. Then the husband demanded the bride's portion, which he was obliged to return in case of separation, which often took place by mutual consent: in that case the father took care of the boys, and the mother of the girls; and the marriage being thus dissolved, the parties were forbidden to join again on pain of death: an institution wisely calculated to check the natural levity of the people.

RACEHORSE.

The horse has been deservedly a great favourite with man, in all countries, and in every age. Beautiful in his appearance, grand and lofty in his bearing, and graceful in his carriage, he commands our admiration. But when, added to these, we see his noble and generous nature, how, with all his mighty powers, and the native ardour and boldness of his character, he yields himself to our will, and, as required, ministers to our pride, or adds to our pleasure, or aids in our labours, our admiration rises into an esteem, that compels us to place him at the head of the quadruped race. Whether viewed as bearing us into battle, or in the chase, or on the turf, or as harnessed to the chariot, the car, or the plough, we see him ever the same true and faithful servant, devoting his energies with a fitness appropriate to the demands of the occasion with a zeal unabating, and a fidelity untiring, even unto death. It is not surprising, then, that he has been regarded with great interest and deep solicitude by the people of every country, from the most remote ages. But the Arabians in particular appear to have entertained a very high sense of his merits at an early period, when they formed studs of the wild horses inhabiting their deserts, (descendants, as we are informed by history, of the famed Persian race, so highly esteemed by the ancients,) and introduced a system of breeding, which, having especial regard to a preservation of the purity of their blood, and the improvement of their qualities, and being pursued, through a succession of ages, with the strictest reference to the attainment of these objects alone, has at length resulted in producing a race superiour to that of any other nation.

The *mountain Arab* stands acknowledged the first of his species. He has never been permitted to form alliances with any race less noble than his own; (for so he is denominated by the Arabians;) and as it has ever been the custom to have attestations of all he has been allowed to form, made by creditable witnesses, who swore to, and sealed them, generally before some publick person; and as they have been preserved with great care, and handed down from generation to generation his genealogy may be traced with perfect certainty for centuries back. There can be no doubt, from the testimony of history, that his is the pure and ancient race here described, and that taken altogether, he forms the model of the horse in his most perfect state. His hair or coat is fine and silken, and his proportions just and beautiful; he is vigorous in his constitution; bold and intrepid in character; mild, generous, and affectionate in disposition: and in his temper

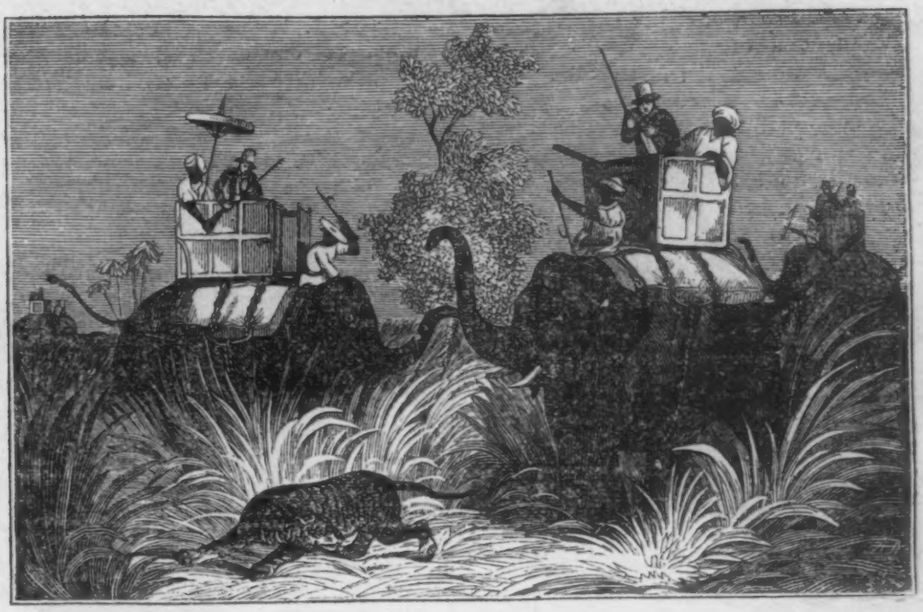
and habits. social. Though low in stature, (seldom reaching fifteen hands in height,) he has sufficient strength of frame, and great power of muscle in his limbs. His head is meager, and of medium length; the forehead flat and broad; ears small, narrow, erect, and set well apart; muzzle small, nostrils wide, and his eyes extremely prominent, and very lively; his neck is proportionably long, and properly elevated, divested of all superfluous flesh, and, rising on a level with his withers, curves slightly as it approaches the head; his thrapple large; his bosom of becoming breadth and prominence; shoulders not too heavy; the blade-bones declining, and firmly set in the withers, which themselves are elevated and thin; back short and straight; tail set on high; ribs deep; belly capacious; haunch bones well concealed; quarters long, and beautifully turned; thighs unusually full, and exceedingly muscular; hoch remarkably tendinous, round in front and flat on the sides; shank thin and broad; fore legs appropriately placed, and proportioned to those behind, arms muscular; knees lean; fetlocks prominent; pasterns of fine size, but rather long; hoofs tough, heels broad, sole thick and concave, writh frogs thin and small.

The *mountain Barb* claims to be considered next in consequence after the Arab. Indeed he possesses qualities but little inferiour, and, as his origin is the same, and all his main characteristicks very similar, he may be viewed as belonging to a variety of the same race. He is sometimes small in stature, but as symmetrically formed, and carries greater depth of frame. He perhaps is not endowed with an equal degree of muscular energy; yet his stride is greater, and he is equally, if not more enduring and vigorous. His disposition, too, is equally happy; but his temper is much less ardent and spirited, and consequently his movements are more dull and sluggish, until he is roused and animated, when they discover all the fire and energy characterizing his race.

The *Turkish horse* (descended chiefly from the Arab, crossed by the Persian, and certain other bloods) is inferior only to the Arab and Barb. His neck, body, and limbs, are much longer—the body being less compactly formed, and the limbs exhibiting less tendon and muscle. He is, however, extremely well-winded, and capable of enduring great fatigue.

The modern or turf horse derives his origin from these three stocks, so commingled by breeding as to give him the qualities of each in nearly equal proportions. From the Arab he obtains speed; stride and stoutness from the Barb; and length and height from the Turk. He is distinguished from the common horse by superiour fineness of skin and hair, more perfect symmetry, and greater regularity of proportion in his general conformation, and by the spirit and animation of his temperament, and the high-toned pride of his character. He is much more fleet, and has better wind, is capable of greater endurance, and possesses ability to carry higher weights; all which arise from his shoulders being more obliquely placed, and better knit to his withers; his greater depth of girth, and the superiour length and more oval turn of his quarters; the closeness of texture of his fibres; the pliability, substance, and firmness of his tendons, and muscular appendages; and the solidity of his bones.

Turf Register.



[Tiger-hunting.]

LIFE IN THE EAST.

The hunting of the common tiger is a favourite sport in countries where they abound. We owe to the pen of Bishop Heber the following description of a scene, of which he was an eyewitness :—

"The young rajah, Gourman Singh, a border chieftain, whose father had been the sovereign of all Kemaoon, till driven to take shelter within the company's borders, having called to pay his respects to the bishop, during his stay at Kulleanpoor, mentioned that a tiger, in an adjoining wood, had done a good deal of mischief and that it would be fine diversion for the bishop, and Mr. Boulderson, the collector of the district. The bishop assured him that he was no sportsman ; but the collector's eyes sparkled at the name of a tiger, and he expressed great anxiety to go in search of him that very afternoon. The bishop, therefore, not liking to deprive him of his sport, went with the intention of being a mere spectator.

"The party set out on their elephants, with a servant behind each seat, or howdah, carrying a large hunting tiger, which, however, was almost needless. A number of people, on foot and horseback, attended from the bishop's camp, and neighbouring villages ; and the same sort of interest was excited as in England by a large hunting party. The rajah was seated in a low howdah, with two or three guns ranged beside him, ready for action ; his elephant was the smallest of the party, hardly larger than a Durham ox, and almost as shaggy as a poodle; she was the native of a neighbouring wood, where her race was generally smaller than those of Bengal and Cittagong. Mr. Boulderson had also a formidable apparatus of muskets and fowling-pieces, projecting over his mohaut or driver's head. Thus equipped, they proceeded about two miles across a plain, covered with long jungle grass, from out of which quails and wild fowls rose in great numbers, and beautiful antelopes were seen scudding away in all directions.

"At length, the party came to a deeper and more marshy ground, and while Mr. Boulderson was doubting whether they should pass through, or skirt it round, some country-people came running to say that the tiger had been tracked there this morning. They accordingly proceeded to the spot. It was a novel and stirring scene. The attendants were all eagerness and animation ; they looked earnestly for every waving of the jungle grass, while the continual calling and shouting of both horse and foot excited an indescribable feeling of interest and surprise. The grass grew so wild, and rose so high, that it reached up to the howdah of the tallest elephant, and almost hid the Rajah's entirely. In the distance appeared, what might have been taken for clouds, had not their base been stationary, and their outline so harsh and pyramidical, the glorious range of the Himalaya mountains, the patriarchs of the continent, white and glistening as alabaster, and seen even at the distance of probably one hundred and fifty miles, towering above the nearest and secondary range, as much as these, which are said to be seven thousand six hundred feet high, lifted their giant buttresses above the plain on which the hunting party were assembled. It was impossible to gaze upon them without a feeling of delight and awe : but in a few moments, the clouds closed round, as on the fairy castle of St. John, and left a cold gray horizon, encircling the green plain, and broken only by scattered tufts of peepul and mango trees.

"At last, the elephants all threw up their trunks into the air, began to roar, and to stamp violently with their fore feet ; the rajah's little elephant turned short round, and, in spite of all her mohaut could say or do, she posted herself, to the rajah's great annoyance, close in the rear of the collector's. The other three, for one of the baggage elephants had come out, went on slowly, but boldly, with their trunks raised, their ears expanded, and their sagacious little eyes bent intently forward. 'We are close upon him,' said Mr. Boulderson ; 'fire where you see the long grass shake, if he rises before you.' Just at that moment, the bishop's elephant stamped

most violently. 'There, there!' cried the mohaut. I saw his head; a short roar, or rather a short growl, followed, and the motion of some animal was seen stealing away through the grass. I fired as directed," continued the bishop, "and a moment after, seeing the motion still more plainly, fired a second barrel. Another short growl followed, the motion quickened, and was soon lost in the more distant jungle. Mr. Boulderson said, 'I should not wonder if you had hit him that last time; at any rate we shall drive him out of the cover, and then I will take care of him.' At that moment, the attendant crowd of horse and foot began to run off in all directions. We hastened to the place, but found that the alarm was a false one; in fact, we had seen all that we were to see of the tiger, though we went twice more through the jungle. A large extent of high grass stretched out in one direction, but this we had not now sufficient daylight to explore. Whether the animal so near me was really a tiger," adds the narrator, "I have no evidence but its growl, the collector's opinion, the assertion of the mohaut, and the alarm expressed by the elephants."

In reply to Bishop Heber's inquiry of the collector if tiger-hunting was generally of the same kind, he was informed by that gentleman, that except when under very peculiar circumstances, or when a tiger felt himself severely wounded, and was roused to revenge, his aim was to remain concealed, and to make off as quietly as possible. It was after he had broken cover, or when at bay, that the serious part of the affray commenced. He then sprung out to meet his enemy, open-mouthed, like the boldest of all animals, a mastiff-dog, and was shot with little trouble; but, if missed, or only slightly wounded, he was truly formidable. To which we may add, from the same authority, that, though not swift of foot he can leap with amazing strength and violence; and that his large head, immense paws, and the great weight of his body in front, often enable him to spring on the head of the largest elephant, and pull him to the ground. When a tiger attacks one of these huge creatures, the latter is generally able to shake him off; and then wo be to him! the elephant either kneels and crushes him at once, or gives him a kick which breaks half his ribs, and sends him flying, perhaps twenty paces. But a large old tiger sometimes clings too fast to be so dealt with, and the elephant is dreadfully torn: thus circumstanced, it often happens that the elephant himself falls, either from pain, or with the hope of rolling on his enemy; and the riders are then in considerable danger, both from friends and foes. Moreover, the scratch of this fierce creature is occasionally attended with inflammatory symptoms, though this rarely happens; and, in general, both wounded men and animals soon recover.

[For the Family Magazine.]

CIRCULAR ZODIACK OF DENDERAH.

The zodiack of Denderah, sculptured in one of the upper buildings of the temple of Denderah, was first commended to the notice of scientifick men, by General Desaix; M. Denon who accompanied the expedition to Egypt, made drawings of it, and this remnant of antiquity soon became the subject of dispute. In 1820, when archeologists were attempting most zealously to avail themselves of the protection granted to them by the pacha of Egypt, Mehemed Ali, Messrs. Saulnier and Lelorrain, conceived the project of bringing this circular zodiack to France. At the commencement of October in the same year, M. Lelorrain embarked for Alexandria, taking with him saws, chisels, vices, and other instruments which mght be necessary for its removal; also a carriage of a new construction. On his arrival at Cairo, he presented himself to Mehemed Ali, and pretending that he wished to visit the antiquities of Upper Egypt, obtained from him a letter of introduction to Achmed Pacha, the governour of upper Egypt, and also a firman in the Turkish language, commanding the governours and other officers of the province, to aid and protect him.

On this, M. Lelorrain chartered a vessel, and left Cairo on the 12th of February with an interpreter and a janissary of the pacha's guard to take care of his effects. After a voyage of a month, he arrived at Denderah, and was kindly received.

Denderah is an Arabian village, on the west bank of the Nile, 420 miles from Cairo and 60 miles from Thebes. The ruins of the ancient Tentyra, formerly one of the largest cities of Egypt, are about a mile and a half distant from this village; and it is in the ruins of the great temple, formerly dedicated to Isis, that the circular zodiack was found.

After making a short excursion to Thebes, to avoid the notice of some English travellers who were then sketching on the spot, M. Lelorrain returned, and on the 18th of April, began to chisel off the planisphere; it was supposed from the drawings published in France, that the whole was carved on one block, but this was found to be an errour; for the monument occupied one stone, and a quarter of another, as is seen in our plate of it A scaffolding was now erected; the workmen proceeded to cut the stone with chisels, and in twenty-four days the zodiack was removed from its place on the wall. The transportation of it, for the distance of six miles to the Nile, was extremely difficult, on account of the ruined monuments, and the inequalities of the ground: but this was accomplished in sixteen days. On the 18th of July, 1821, the zodiack was embarked at Alexandria, and in January, 1822, the two stones were at Paris. It was then purchased by the French government, and placed in the royal library.

The planisphere of Denderah, is a large circle described in a square: its diameter is seven feet nine inches; the diameter of the smaller circle is four feet nine inches. As we have already stated, and as is seen in the engraving, the monument consists of two parts; on one stone is carved three quarters of it, on another the remaining fourth. Near the centre of the inner circle, the twelve constellations of the zodiack are arranged in nearly a circle. Within are the northern constellations, among which the Ursa major is easily distinguished, it being placed directly in the centre of the planisphere. This constellation, according to Plutarch, was called the star of Typhon, and we find in its place a monstrous animal, with the head and body of a hippopotamus, an animal consecrated to Typhon. The other northern constellations, nineteen in number, have but little similarity in form to those represented in our spheres. Five other constellations are situated

[Circular Zodiack of Denderah.]

in the centre of the signs of the zodiack, and exactly on the same line. Of the inferiour constellations, fourteen are placed in the field of the planisphere, directly below the constellations of the zodiack. The others, thirty-seven in number, are all on the extreme edge of the internal circle, the head turned to the centre. All the figures proceed in the same direction, and describe circles which enlarge from the centre to the circumference, so that the pole is easily seen. The thirty-seven constellations which surround the planisphere, are all attended with a certain number of hieroglyphicks, which doubtless contain their names. The whole circle is supported by twelve figures, which are situated at the eight principal points of the circumference, while the arms are extended, as if to support the planisphere. At the angles of the square stand four females, and at each of the intermediate points, we see a group of men, with the faces of frogs. A large circular band, which is entirely filled with hieroglyphicks, extends into the corners. They are situated at the two opposite angles, one on the right, the other on the left, of the diagonal. In the angles we see also other marks, the signification of which is unknown.

The most remarkable zodiacks beside that of Denderah, are those of the great temple of Esne and that of Palmyra.

A COMPARISON OF SPEED.

A French scientifick journal states that the ordinary rate is per second:—

Of a man walking - - -	4 feet.
Of a good horse in harness -	12
Of a raindeer in a sledge on the ice	26
Of an English racehorse - -	43
Of a hare - - - - -	88
Of a good-sailing ship - - -	19
Of the wind - - - - -	82
Of sound - - - - -	1038
Of a 24-pounder cannon-ball -	1300
Of the air, which, so divided, returns into space - -	1300

[For the Family Magazine.]

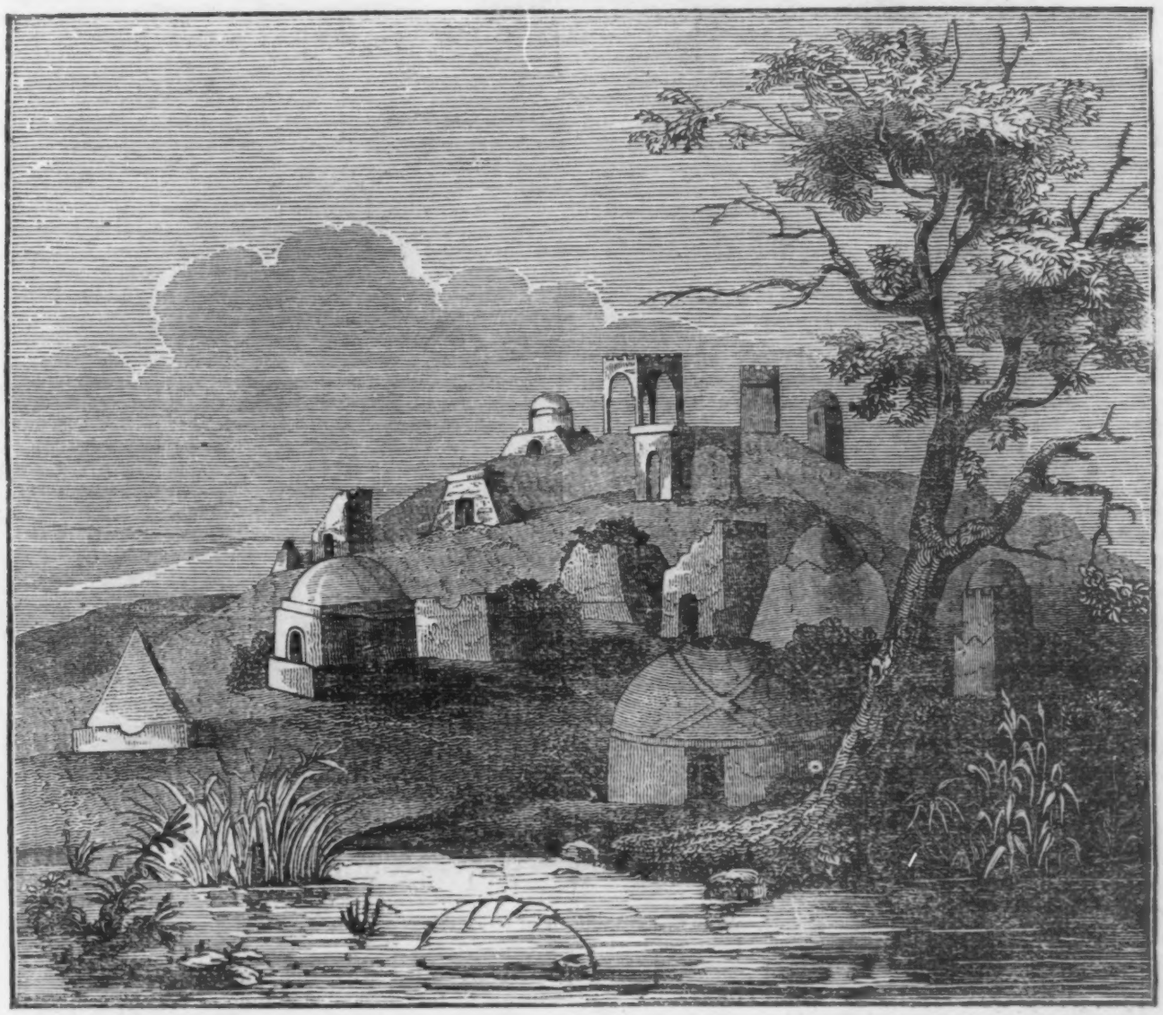
THE KIRGHIZA COSSACKS.

Among the different Asiatick tribes which Russia has brought into subjection, either by force of arms or by political tact, there is no one which is more numerous, or which occupies a larger extent of country, than the tribe of the Kirghiza Cossacks. The immense uncultivated wild steppes where these people live, are bounded on the north, by the desert of Siberia, west by the sea of Aral, and partly by the Caspian sea, south by the country of the Turcomans, the Kheivars and the Boukhares, and east by the fortified frontiers of the Chinese empire.

The Kirghiza Cossacks are divided into three hordes called the great, the middle, and the small horde. All these hordes, however, do not acknowledge the power of Russia. The Kirghiza Cossacks have always been passionately fond of liberty, and have been brought into subjection partly by the Russians, and partly by the Chinese, only by internal discord, or by superiority of numbers. But if there is the least prospect of obtaining their freedom, they rise under the yoke and enjoy for a time their independence, to become again subjected to their old or to new masters. Hence it is difficult to designate with certainty, the number of Cossacks under the yoke of Russia, or the degree of influence exercised over them. We only know that most of the smaller and middle hordes belong nominally to Russia, and the great horde is partly under the dominion of the Chinese. It is also notorious that all the efforts of Russia to induce them to lead an agricultural life have been unsuccessful.

The manners and customs of all nomadian people are very similar. We always see in them the same mixture of simple barbarism, and the same energetick love of liberty, which in them frequently takes the place of civilization. The horse is the inseparable companion of the Kirghiza Cossacks. The flesh serves him for nourishment: his skin covers the tent which protects him from summer's heat and winter's cold. One event alone has an influence on the life of the Cossack: death seems to interrupt for a moment their wandering propensities, for although they have no houses, nor cities, yet they have mausolea and cemeteries. They despise the arts of industry during life, but do homage to them at their last hours.

When a Kirghiza Cossack has breathed his last, all the females give themselves up to the extreme of despair. They groan, cry, tear their hair, beat their breasts and faces, and recite the virtues of him whose loss they mourn. This ceremony generally continues for a long time, and is frequently renewed every morning and evening for a year: the body is then represented by the trunk of a tree, upon which



[Cossack cemetery.]

are placed the garments of the deceased. When the body is washed, dressed, and wrapped in a shroud, it is carried to the cemetery and laid in a grave, together with the arms of the deceased and the saddle, bridle, &c., of his horse. Among some tribes the horse is killed and his flesh eaten, while the bones are mingled with the mortal remains of the Cossack.

Having bid a last adieu to the dead, the whole company set down to an abundant repast; and a bluish flag is hoisted over the tent in token of mourning. The funeral respects are always at the expense of the parents or heirs and must be proportional to the riches and rank of the deceased; otherwise the host exposes himself to the contempt of the guests. A traveller Rubruquis who was present at the funeral of the khan of the small horde, asserts that there were consumed two thousand five hundred sheep, two hundred horses, and more than five hundred measures of *koumis*, a fermented drink, made from fermented mare's milk.

The view of a cemetery of the Kirghiza Cossacks is very pleasing. Fatigued with the dull monotony of the steppes, the eye rests with pleasure on trees, pyramids, turrets, and other monuments of these cities of the dead. From one tomb the bow and arrows of the deceased are suspended; on another are a saddle and bridle; the tomb of a child is surmounted by a cradle. The habits of life or the age of the deceased is always indicated by some symbolical ornaments. A tree is generally planted over each tomb and if it thrives, the dead man is counted among the happy inhabitants of that paradise promised to the faithful by Mahomet.

These cemeteries and the banks of some rivers, form the only ornament of these vast and melancholy countries. The ruins of great cities and of sumptuous palaces, however prove clearly that this region was formerly inhabited by enlightened people, and that civilization has been banished from it. A merchant of Boukhara, distinguished for his science among all the people of this country, stated to a traveler that the borders of the river Syr David and of the sea of Aral were once so thickly populated, that a cat could go from Turkestan to Theiva without touching the ground, by leaping from one roof to another.

Bones of Fish.—Teeth supposed to be those of the shark, from an inch to an inch and a half long, slender and very sharp, have been found in the midst of the prairies of Alabama. Portions of the vertebræ of fish have been met with in the same region.

[Mount Sinai and Horeb, with the Convent of St. Catherine, from the North.]

[For the Family Magazine.]

ILLUSTRATIONS OF SCRIPTURE.

In the third chapter of Exodus, and first verse, mention is made of mount Horeb. This together with mount Sinai, is represented in the cut. The sacred locality is under the guardianship of a body of Greek monks, who occupy an ancient convent at the foot of the mountain, called the convent of St. Catherine, by whose name also the mountain supposed to be Horeb is now distinguished. The monks state that the original church built here by the emperess Helena, the mother of Constantine, was erected on the spot where the Divine presence was manifested to Moses, and where afterward the present fortified convent was constructed; under the direction of Justinian it was made to include the same sacred spot. In regard to Sinai the best account of it has been given by Burckhardt as follows: "From this elevated peak, a very extensive view opened before us, and the direction of the different surrounding chains of mountains could be distinctly traced. The upper nucleus of Sinai, composed almost entirely of granite, forms a rocky wilderness of an irregular circular shape, intersected by many narrow valleys, and from thirty to forty miles in diameter. It contains the highest mountains of the peninsula, whose shaggy and pointed peaks, and steep and shattered sides render it clearly distinguishable from all the rest of the country in view. It is upon this highest region of the peninsula that the fertile valleys are found which produce fruit-trees; they are principally to the west and southwest of the convent, at three or four hours' distance. Water, too, is always found in plenty in this district; on which account it is the place of refuge of all the Bedouins when the low country is parched up." He adds, "I think it very probable that this upper country or wilderness is exclusively the *Desert of Sinai*, so often mentioned in the account of the wanderings of the Israelites. Mount St. Catherine appears to stand nearly in the centre of it." To the southwest of mount Sinai lies a narrow valley, which Dr. Pococke terms the vale of Job, or the vale of God: this he considers to be the vale or plain of Rephidim, where the Israelites encamped when they came out of the Desert of Sin. Here is shown the rock which Moses is said to have struck, when the waters gushed out so miraculously and supplied the fainting Israelites, (Exodus xvii. 1–7,) Dr. Shaw states it to be about six yards square: but Dr. Pococke says it is a beautiful red granite stone, about seventy-five feet long, ten wide, and about twelve feet high. It lies tottering and loose near the middle of the valley, which is here about two hundred yards broad: and it seems to have been formerly a part or cliff of mount Sinai, which hangs in a variety of precipices over all this plain. There are four or five fissures one above the other on the face of the rock, each of which is about a foot and a half long, and a few inches deep. These run along the breadth of the rock, and are not rent downward; they are more than a foot apart, and there is a channel worn be-

tween them by the gushing of the waters. Dr. Shaw remarks that neither art nor chance could be concerned in the contrivance, and it never fails to produce the greatest seriousness and attention in those who behold it. The Dr. was in danger of being stoned by his Arab guards for attempting to break off a corner of it. The Arabs call this rock of Meribah, the stone of Moses: it is greatly venerated by the Bedouins, who put grass into the fissures above described, as offerings to the memory of Moses, in the same manner as they place grass on the tombs of their saints, because grass is to them the most precious gift of nature, and that upon which their existence depends. They also bring hither their female camels, for they believe that by making the animal crouch down before the rock, while they recite some prayers, and by putting fresh grass into the fissures of the stone, the camels will become fruitful, and yield an abundance of milk.

(From the West. Lit. Journal.)

THE LAST OF THE INDIAN FIGHTERS.

DIED, at his residence in Logan county, on the 29th April last, General SIMON KENTON, aged eighty-one years, less seventeen days. The deceased is believed to have been the last survivor, of that hardy and intrepid band of pioneers, composed of Boon, Kenton, Logan, and Crawford, who took so active a part in the *first* exploration of the western country, during the closing quarter of the last century.

Simon Kenton was a Virginian by birth, and emigrated to the wilds of the West in the year 1771. He was born, according to a manuscript which he dedicated to a gentleman of Kentucky, several years since,) in Fauquier county, on the 15th of May, 1755, of poor parents. His early life was passed principally upon a farm. At the age of sixteen, having a quarrel with a rival in a love-affair, he left his antagonist upon the ground for dead, and made quick steps for the wilderness. In the course of a few days, wandering to and fro, he arrived at a small settlement on Cheat creek, one of the forks of the Monongahela, where he called himself Butler. Here, according to Mr. M'Clung, whose interesting account of Kenton, in the "Sketches of Western Adventure," we are following, he attached himself to a small company headed by John Mahon and Jacob Greathouse, which was about starting farther west on an exploring expedition. He was soon induced, however, by a young adventurer of the name of Yager, who had been taken by the western Indians when a child, and spent many years among them, to detach himself from the company, and go with him to a land which the Indians called Kantuc-kee, and which he represented as being a perfect elysium. Accompanied by another young man, named Strader, they set off for the backwoods paradise in high spirits: Kenton not doubting that he should find a country flowing with milk and honey, where he would have little to do but to eat, drink, and be merry. Such, however, was not his luck. They continued wandering through the wilderness for some weeks, without finding the "promised land," and then retraced their steps, and successively explored the land about Salt-Lick, Little and Big Sandy, and Guyandotte. At length, being totally wearied out, they turned their attention entirely to hunting and trapping, and thus spent nearly two years.—Being discovered by the Indians, and losing one of his companions, (Strader,) Kenton was compelled to abandon his trapping-waters, and hunting-grounds. After divers hardships, he succeeded in reaching the mouth of the Little Kenhawa, with his remaining companion, where he found and attached himself to another exploring party. This, however, was attacked by the Indians, soon after commencing the descent of the Ohio, compelled to abandon its canoes, and strike diagonally through the woods for Green-briar county. Its members suffered much in accomplishing this journey, from fatigue, sickness, and famine; and on reaching the settlements, separated.

Kenton's rival of the love-affair had long since recovered from the castigation which he had given him. But of this, the young hero had not heard. He therefore did not think proper to venture home; but, instead, built a canoe on the Monongahela, and once more sought the mouth of the Great Kenhawa, where he hunted till the spring of 1774. This year he descended the Ohio as far as the mouth of Big Bone creek, and was engaged in various explorations till 1778, when he joined Daniel Boon in his expedition against the Indian town on Paint creek.—Immediately upon his return from this, he was despatched by Col. Bowman, with two companions, to make observations upon the Indian towns on the Little Miami, against which the colonel meditated an expedition. He reached the towns in safety, and made the necessary surveys without being observed by the Indians; and the expedition might have terminated much to his credit, and been very useful to the settlers in Kentucky, had he not before leaving the towns stolen a number of the Indians' horses. The animals were missed early in the following morning, the trail of the marauders was discovered, and pursuit instantly commenced. Kenton and his companions soon heard cries in their rear, knew that they had been discovered, and saw the necessity of riding for their lives. They therefore dashed through the woods at a furious rate, with the hue and cry after them, until their course was suddenly interrupted by an impenetrable swamp. Here they from necessity paused for a few moments, and listened attentively. Hearing no sounds of pursuit, they resumed their course—and skirting the swamp for some distance, in the vain hope of crossing it, they dashed off in a straight line for the Ohio. They continued their furious speed for forty-eight hours, halting but once or twice for a few minutes to take some refreshment, and reached the Ohio in safety. The river was high and rough, and they found it impossible to urge the jaded horses over. Various efforts were made, but all failed. Kenton was never remarkable for prudence; and on this occasion, his better reason seems to have deserted him entirely. By abandoning the animals, he might yet have escaped, though several hours had been lost in endeavouring to get them over. But this he could not make up his mind to do. He therefore called a council, when it was determined, as they felt satisfied they must be some twelve hours in advance of their pursuers, that they should conceal their horses in a neighbouring ravine, and themselves take stations in an adjoining wood, in the hope that by sunset, the high wind would abate, and the state of the river

be such as to permit their crossing with the booty. At the hour waited for, however, the wind was higher and the water rougher than ever. Still, as if completely infatuated, they remained in their dangerous position through the night. The next morning was mild, the Indians had not yet been heard in pursuit, and Kenton again attempted to urge the horses over. But, recollecting the difficulties of the preceding day, the affrighted animals could not now be induced to enter the water at all. Each of the three men therefore mounted a horse, abandoning the rest, (they had stolen quite a drove,) and started down the river with the intention of keeping the Ohio and Indiana side till they should arrive opposite Louisville. But they were slow in making even this movement; and and they had not ridden over a hundred yards when they heard a loud halloo, proceeding apparently from the spot which they had just left. They were soon surrounded by the pursuers. One of Kenton's companions effected his escape, the other was killed. Kenton was made prisoner—"falling a victim," says Mr. M'Clung, "to his excessive love of horse-flesh."

After the Indians had scalped his dead companion, and kicked and cuffed Kenton to their hearts' content, they compelled him to lie down upon his back, and stretch out his arms to their full length. They then passed a stout stick at right angles across his breast, to each extremity of which, his wrists were fastened by thongs of buffalo-hide. Stakes were next driven into the earth near his feet, to which they were fastened in like manner. A halter was then tied round his neck, and fastened to a sapling which grew near. And finally, a strong rope was passed under his body, and wound several times round his arms and at the elbows—thus lashing them to the stick which lay across his breast, and to which his wrists were fastened, in a manner peculiarly painful. He could move neither feet, arms, nor head; and was kept in this position till the next morning. The Indians then wishing to commence their return-journey, unpinioned Kenton, and lashed him by the feet, to a wild, unbroken colt, (one of the animals he had stolen from them,) with his hands tied behind him.

In this manner he was driven into a captivity as cruel, singular, and remarkable in other respects, as any in the whole history of Indian warfare upon this this continent. "A fatalist," says the author of the *Sketches of Western Adventure*, "would recognise the hand of destiny in every stage of its progress. In the infatuation with which Kenton refused to adopt proper measures for his safety, while such were practicable; in the persevering obstinacy with which he remained on the Ohio shore until flight became useless; and afterward, in that remarkable succession of accidents, by which, without the least exertion on his part, he was so often at one hour tantalized with a prospect of safety, and the next plunged into the deepest despair. He was eight times exposed to the gauntlet—three times tied to the stake—and as often thought himself upon the eve of a terrible death. All the sentences passed upon him, whether of mercy or condemnation, seem to have been pronounced in one council only to be reversed in another. Every friend that Providence raised up in his favour, was immediately followed by some enemy, who unexpectedly interposed, and turned his short glimpse of sunshine into deep darkness than ever. For three weeks he was constantly see-sawing between life and death; and during the whole time, *he* was perfectly passive. No wisdom, or foresight, or exertion, could have saved him. Fortune fought his battle from first to last, and seemed determined to permit nothing else to interfere."

He was eventually liberated from the Indians, when about to be bound to the stake for the fourth time, and burnt, by an Indian agent of the name of Drewyer, who was anxious to obtain intelligence for the British commander at Detroit, of the strength and condition of the settlements in Kentucky. He got nothing important out of Kenton; but the three weeks Football of Fortune was sent to Detroit, from which place he effected his escape in about eight months, and returned to Kentucky. Fearless and active, he soon embarked in new enterprises; and was with George Rogers Clarke, in his celebrated expedition against Vincennes and Kaskaskin—with Edwards, in his abortive expedition to the Indian towns in 1785—and with Wayne, in his decisive campaign of 1794.

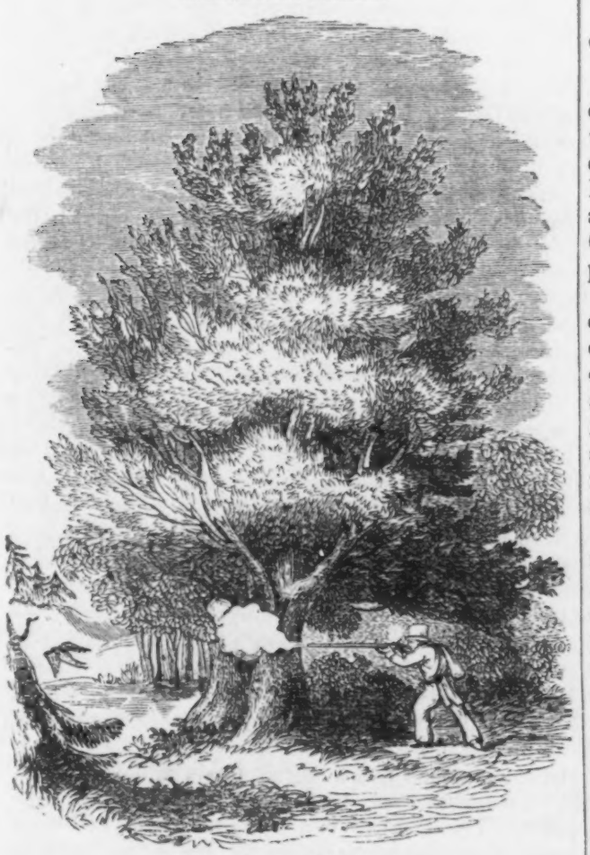
Simon Kenton, throughout the struggles of the pioneers, had the reputation of being a valuable scout, a hardy woodsman, and a brave Indian-fighter; but in reviewing his eventful career, he appears greatly to have lacked discretion, and to have evinced frequently a want of energy. In his afterlife, he was much respected; and he continued to the last, fond of regaling listeners with stories of the early times. A friend of ours, who about three years ago made a visit to the abode of the venerable patriarch, describes in the following terms, his appearance at that time: "Kenton's form, even under the weight of seventy-nine years, is striking, and must have been a model of manly strength and agility. His eye is blue, mild, and yet penetrating in its glance. The forehead projects very much at the eyebrows—which are well-defined—and then recedes, and is neither very high nor very broad. His hair, which in active life was light, is now quite gray; his nose is straight; and his mouth before he lost his teeth must have been expressive and handsome. I observed that he had yet one tooth—which, in connexion with his character and manner of conversation, was continually reminding me of Leatherstocking. The whole face is remarkably expressive, not of turbulence or excitement, but rather of rumination and self-possession. Simplicity, frankness, honesty, and a strict regard to truth, appeared to be the prominent traits of his character. In giving an answer to a question which my friend asked him, I was particularly struck with his truthfulness and simplicity. The question was, whether the account of his life, given in the Sketches of Western Adventure, was true or not. 'Well, I'll tell you,' said he: 'not true. The book says, that when Blackfish the Injin warriour asked me, when they had taken me prisoner, if Colonel Boon sent me to steal their horses, I said 'no, sir!'' Here he looked indignant, and rose from his chair. 'I tell you I never said '*sir*!' to an Injin in my life; I scarcely ever say it to a white man.' Here Mrs. Kenton, who was engaged in some domestick occupation at the table, turned round and remarked, that when they were last in Kentucky, some one gave her the book to read to

her husband; and that when she came to that part, he would not let her read any farther. 'And I tell you,' continued he, 'I was never tied to a stake in my life to be burned. They had me painted black when I saw Girty, but not tied to a stake.'"

We are inclined to think, notwithstanding this, that the statement in the "Sketches," of his being three times tied to the stake, is correct; for the author of that interesting work had before him a manuscript account of the pioneer's life, which had been dictated by Mr. Kenton, to a gentleman of Kentucky, a number of years before, when he had no motive to exaggerate, and his memory was comparatively unimpaired.—But he is now beyond the reach of earthly toil, or trouble, or suffering. His old age was as exemplary, as his youth and manhood had been active and useful. And though his last years were clouded by poverty, and his eyes closed in a miserable cabin to the light of life, yet shall he occupy a bright page in our border history, and his name soon open to the light of fame.

Old Rifle.

AMERICAN TREES.



[The Alder.]

Two varieties of the alder are found in the United States, one of which is termed the *black* (*alnus glauca*) and the other the *common* alder (*a. serrulata*). Of these the former is unknown in the Southern states; in the Middle states it is by no means common, and occurs principally in Massachusetts, New Hampshire, and Vermont. The black alder sometimes grows to the height of fifteen or twenty feet, and has a diameter of three inches. It occurs in moist cool places and on the margins of the rivulets. The bark of the trunk is smooth and glossy, and of a deep brown colour, spotted with white.

The common alder is found in the Northern, Middle, and Western states, and abounds in places which are covered with stagnant water. It does not equal in height the black alder, being not more than eight or ten feet high: its leaves are of a rich green and their shape is similar to those of the black alder.

The alder is much more valuable as underwood than when grown for timber, being, like the willow, more vigorous for being cut down, that is the roots are more active in yielding supplies of young shoots than the old stems. Alder poles are much used by turners for small articles: the charcoal made from it is useful in preparing gunpowder and when butts of a good size can be procured, the timber is highly valuable to lie constantly under water. The bark in some countries is used for tanning, and some quality used in dying is extracted from the young twigs. With sulphate of iron the bark also forms a black die, and hence it is much used by hatters, in the place of galls, for colouring wool.

GREAT ERUPTION OF THE VOLCANO OF COSIGUEINA.

In America, between the 10th and 15th degrees of north latitude, there are at least twenty-one active volcanoes. All these are situate in the provinces of Guatimala and Nicaragua, which lie between Mexico and the isthmus of Panama. The following account of the last great eruption of the volcano of Cosigüeina is translated from the official reports published by the government of Guatimala:—

On the twentieth of January, 1835, at half past six o'clock in the morning, the volcano of Cosigüeina broke out, and the vapour which arose was beautiful. At eleven o'clock it covered the whole of the territory around Nacaome, and at noon the obscurity was so intense as to exceed all description. We had then a night of eighteen hours' duration, while tremulous movements of the earth, noises, tempests of thunder and lightning, caused by the combustible matter which filled the atmosphere, and an impetuous wind impelling a heavy shower of ashes, rendered that night a period of distress and horrour. The morning of the twenty-first was melancholy, though the light penetrated through the dense vapours, and the sun sometimes showed a pale and saffron-coloured countenance. The twenty-second resembled the preceding day, and the night was passed rather quietly until twelve o'clock. There then commenced a hollow growling sound, vehement and alarming, which continued without interruption or diminution for at least thirteen minutes. This noise was instantly followed by some terrifick detonations, as loud as reports from artillery of the largest caliber. At a quarter past twelve, a violent tremulous movement indicated a fresh eruption, which was soon confirmed by the ascent of a volume of smoke. At half past two, there was a sort of twilight, which served to interrupt a night of thirty-six hours, and the noises continued, being louder on the twentieth. A reflection of red light occasionally broke the obscurity of the atmosphere; but so constant and terrible were the explosions, and the thunder and lightning, that it appeared to threaten the annihilation of the world

itself. The twenty-fourth commenced much in the same manner as the twenty-first.

That a volcano should renew its eruptions, vomit forth lava and ashes, and occasion damage, might be expected to occur. But that the eruption of a hill, not one eighth so high as Pacaya, should have darkened for several days the half of central America, and covered a space exceeding perhaps 15,000 square leagues with lava and ashes, to the height or thickness, in some places, of half a yard, in others a quarter, and nowhere less than two inches; that men should fly to the mountains, and wild beasts to the towns, as has happened at Nacaome, in Pesperi, Corpus, Ila del Tigre, Conchagua, el Puerto, &c.; that the fishes should have perished in the rivers, the birds be suffocated by dust, the reptiles and quadrupeds by slime; and that man should remain unhurt amidst this convulsion of the elements—is a thing truly astonishing, and scarcely to be credited. Cosigüeina continued, like Isalco, to vomit exhalations until the fifth of February. The atmosphere cleared up slightly about six o'clock in the evening, and eight in the morning; but when the wind began to blow, clouds of dust enveloped Nacaome on all sides. Hitherto no bad effects had resulted except inflammation about the head, eyes, mouth, and throat, which caused very severe coughing. It is extraordinary that the inhabitants of Nacaome were able to endure the showers of dust without being suffocated, especially as it has been found to be loaded with sulphur, iron, and antimony, and to be very inflammable. Cattle and flocks perished, and an unusual mortality was expected from the deficiency of pasture, and from the deterioration of the water.

At San Marcos, from the twenty-third to the twenty-ninth of January, the atmosphere of the city was observed to be impregnated with smoke and ashes; and on the twenty-fourth particularly, so great a shower of ashes fell, that the roofs of all the houses were whitened with it. Until nine o'clock in the morning, repeated explosions were heard, by which great alarm was created through the various towns, under the impression that they proceeded from the volcano of Quezaltenango; and the city was presently deserted by many of the merchants, who removed themselves to a distance, for the better security of their families.

On the twentieth of January, in the morning, the inhabitants of the town of Masaya, heard towards the northeast some faint volcanick sounds, whilst those of the town of Viejo observed a sheet of fire rising perpendicularly to a considerable elevation, and afterward declining towards the north. This was the same appearance which was observed in the department of Segovia, where at the same time some reports were heard, and some slight shocks were experienced.

In Leon, the capital, and in the department of Granada, the catastrophe had not been perceptibly felt, until the dawn of the twenty-fifth, when the explosion developed itself to such a degree, that from one o'clock the sky was darkened with an opacity which continued to deepen till eleven in the morning, when the inhabitants of the capital were enveloped in a most frightful darkness, whilst terrifick reports were heard, and showers of ashes were precipitated over all the face of the country.

This natural event, produced an impression in the minds of the superstitious inhabitants, that it proceeded from the divine anger; and whilst the people ran in crowds to the temples to implore the mercy of heaven, the garrison of the town diverted their consternation by discharges of cannon and musketry. This was done by order of the government, who, by the advice of some intelligent chymists, directed discharges of artillery to be fired, rockets to be let off, fires to be lighted, and the bells of all the churches to be rung, in order to dissipate the dense vapours with which the atmosphere was impregnated.

The quickness was astonishing with which, on the twenty-third, all the atmosphere was filled with volcanick matter, from Nicaragua, as far as the department of that name, towards the southeast. The murky clouds then gradually moved towards Nandayme, where, about three o'clock in the afternoon, the darkness reigned over the city, and extended to the town of Rivas. The same thing occurred in the department of Granada, the towns in which suffered nearly to the same extent as in Leon, whilst those of Matagalpa in Segovia experienced a night of thirty-six hours' duration.

Fortunately not a single life was lost, though in the immediate neighbourhood of the mountain where the eruption occurred some cattle were destroyed. It does not appear that the damage will be so great as was conceived at the time of the catastrophe, because the sand or ashes that have been scattered over the plains will wonderfully fertilize them—a fact which has been ascertained in some places watered a few days afterward by the rain, where the plants showed a most luxuriant appearance, the pasture was rapidly rising, and every thing seemed to promise a forward spring.

The agitation of the air, when winds prevail, usually affects people with disagreeable sensations, and does great injury to cattle, on account of the dust which fills the atmosphere, to such a degree that is impossible to see even for the distance of a league.

On the ninth of March, a commission went to observe the volcano, and they could not recognise the coast with perfect distinctness, or throughout its entire extent, in consequence of the cloud of smoke which covered the plains. A forest, which appeared to have survived many changes of the earth's surface, had disappeared. Two islands have been formed in the sea—one being eight hundred yards, and the other two hundred, in its greatest extent. Their composition consists of pumice-stone and scoriæ, with a number of pyrites of a golden colour, and having a strong metallick odour. Some shoals in the sea, from five hundred to six hundred yards long, were formed. In one of them a large tree was fixed with its branches downward, and its roots raised up. The river Chiquito, which ran towards the northwest, was completely choked up, and another river, six yards broad, had sprung up in the opposite direction.

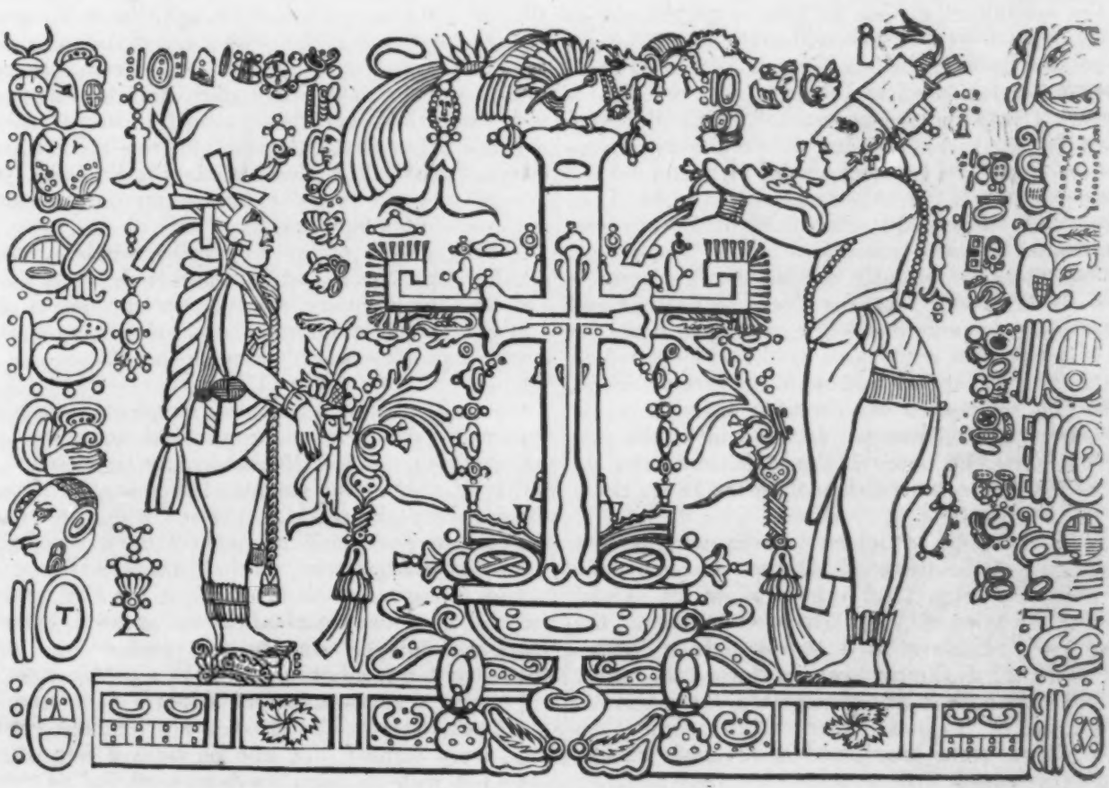
A party proceeded from the town of El Viejo to make another observation, by which it was ascertained that the farms of Sapasmapa and Cosigüeina, situate in the immediate neighbourhood of the volcano, had disappeared. From the first, not a single head of cattle had escaped. In the latter, three hundred quadrupeds were found remaining, but in a

weak and wretched condition, and they were not expected to survive. The remains of immense numbers of quadrupeds and birds were found lying in the immediate neighbourhood of the volcano. A vessel, which on the twentieth of last month was near the coast, having a crew of seven men, was supposed to have been destroyed, since no information respecting it was received.

In the city of Leon the ravages done have been less, for the darkness there was not very great, and the same may be said of the showers of dust. The noise travelled to Costa Rica, where the cause was considered to be very near. The Colombian galley Boladora, which left Acapulco on the twentieth ult. for the Realejo, experienced the darkness at twenty leagues from the shore, as well as such a copious shower of dust, that the crew were apprehensive of being suffocated; and they were occupied for forty-eight hours in clearing the vessel with spades. Not being able to make for the Realejo on account of the darkness, they directed their course to Punta Arenas, with the full conviction that the whole state of Nicaragua had disappeared. The volcano continued vomiting fire and smoke, and causing at intervals a trembling of the earth.

Until further information arrives, it is impossible to calculate precisely the distance to which the showers of cinders extended, and the noises were heard. The detonations were so loud as to be heard at Ciudad Real de Chiapas, which is three hundred and twenty-five leagues from the mountain in one direction, and at El Peten, which is three hundred and twenty-two leagues in another; and, as it is probable they could have been heard farther, we may estimate that the eruption affected the district, extending around the mountain three hundred and fifty leagues in every direction. Even at Dolores, in the district of Peten, showers of ashes, volcanick reports, and earthquake-shocks, were experienced.

In the time of the Roman emperour Titus, in consequence of an eruption of Vesuvius, the ashes are stated to have been thrown into Africa, a story which has been considered incredible by some modern writers. This eruption of Cosigüeina shows the statement of the ancients to be by no means improbable.



[Bas relief.]

[For the Family Magazine.]

AMERICAN ANTIQUITIES.

Every one has heard of the ancient cities of Herculaneum and Pompeii, and many Americans have crossed the Atlantick, have submitted to the vexations of French and Italian police and custom-house officers, to the miserable accommodations of Italian inns, and to the extortions of the vetturini, for the purpose of visiting these ruins; ignorant that in America may be found two cities of far greater extent than either of these mentioned above, and covered not by the cinders or lava of a volcano, but by the rapid vegetation of past ages.

Palenque, the city of the desert, and *Mitla*, the city of the dead, which are situated in Yucatan, present the ruins of immense edifices, dispersed over a large extent of surface, Palenque having been traced for twenty-four miles. In these cities tem-

ples, palaces, large tombs ornamented with all the luxury of sculpture, the evidences of the power of a people whose annals are lost, and which present the marks of a highly-civilized and great nation.

Thirty years after these cities were discovered, the Spanish government prepared to explore them, the colossal ruins of which seemed in their nature to partake of the fabulous. The governour of Guatimala, ordered Calderon and Del Rio to visit them, The first thing to be done, was to remove the trees which grew over them; this was accomplished, and after three weeks of intense labour fifteen edifices were in a state to be examined and described. The results of this expedition, however, were very imperfect; but in 1805, Charles IV. of Spain, sent a new expedition under the care of Captain Dupaix, who was accompanied by a capable artist, Senor Castenada. The results of their researches were very important; sacred and civil edifices, immense constructions of a military character to defend cities, and protect important passes, bridges, dikes, waterworks, extensive excavations, and subterranean passages, all combined to fill the minds of Dupaix, and his companions with admiration and wonder.

The summits and walls of these monuments were covered with sculpture and bas reliefs, which open to the scientifick a wide field for conjecture. One of the most interesting of the bas reliefs is that figured at the head of this article, and it is curious to observe the formation of the head in the personages represented, in whom the facial angle is so acute that there is apparently no forehead. This is seen too in all the persons figured at Palenque and consequently it is fair to presume that it is a national type. This bas relief, judging from the difference in the height and costume of the two individuals, is intended to represent a male and female, offering their child to a divinity whose emblem is a bird, and whose altar has the form of a cross. It would be out of place here to mention all the conjectures to which the presence of a cross in these monuments gives rise. We will only remark that the name Palenque was not known till the end of the last century; that it is not mentioned in any narrative previous to that time, and that these ruins are three hundred and thirty leagues distant from the capital of Montezuma, and consequently from the principal residence of his Christian conquerors, and it is difficult to admit that a city, the ruins of which extend twenty-four miles would not have been mentioned as a brilliant conquest, if it had been seen by the Spaniards, and at a time too when it was sufficiently prosperous to enable them to execute these monuments.

These bas reliefs, of which the one given above is a specimen, also give us some idea of the national costume of the Mexicans: the numerous flowers, and different figures in their garments, show that the manufacture of stuffs was carried to great perfection by this industrious people, and also we discover the custom of plaiting the hair in tresses and of ornamenting the arms and legs with rich and complex bracelets.

The temperate man, like fish in crystal streams, untainted with disease, smoothly glides through the soft current of life.—*Feltham.*

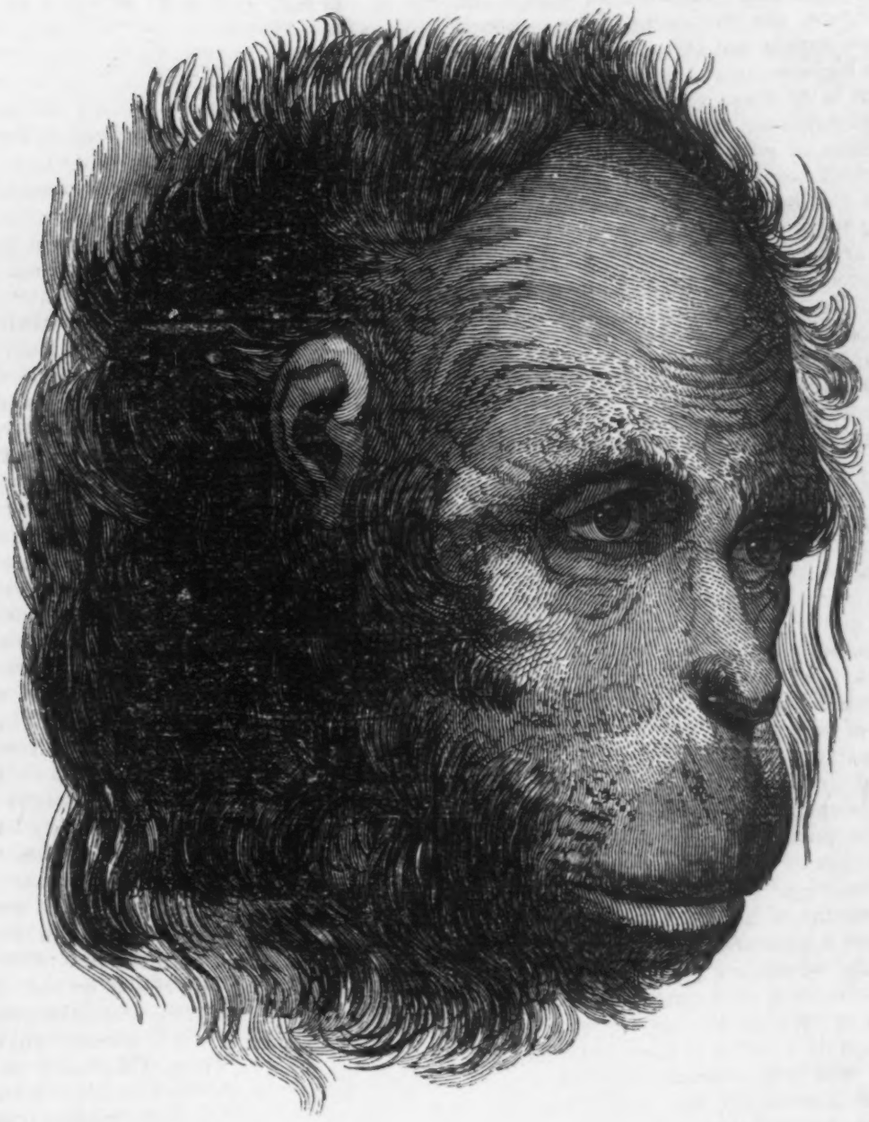
NATURAL HISTORY.

[For the Family Magazine.]

THE ORANG OUTANG.

The annexed engraving is copied from an excellent portrait in oil, of the female Orang Outang, Nancy, imported in the ship Liberty, Captain Davis, by Thomas Richards, Esq., and remarkable as being the largest living specimen of this most manlike species, the *simia satyrus*, or true wild man of the woods—which has as yet ever reached either America or Europe. She arrived at Philadelphia in the latter part of May, 1835. After a few days, having passed into the hands of new owners, she was sent to New York. She was unfortunately much exposed to the influence of cold and damp weather during her transportation, and the evening of her arrival, was first observed to be unwell; on the succeeding morning, her disease had assumed the character of an irregular intermittent fever and medical advice was resorted to. After lingering for some weeks, alternately better and worse, during which time, recourse was had to every expedient which art or ingenuity could devise for her comfort and recovery, much to the regret of the few who saw her, she died at the village of Harlem, near New York, on the nineteenth of July following. The deathbed scene as represented by those who were present, must have been singularly affecting. The account of it as given by her keeper is as follows. Early in the evening her extremities began to grow cold and at ten oclock P. M., pulsation at the wrists had ceased. She appeared conscious of her approaching end and dreaded it. She shivered and groaned very much, and appeared to supplicate those around for assistance, often extending her arms to them and embracing them around the neck. She would awake from a dose in great trepidation and cling to the neck of her keeper, where she would hang until sleep or exhaustion caused her to loosen her hold. This was frequently repeated as long as her strength remained. After violent struggles and much groaning, at three o'clock A. M., she had ceased to breathe. A careful anatomical examination of the body was made by several medical gentlemen, by whom copious notes were taken and the several dimensions accurately noted. After the skin was removed, a cast of the head and chest was taken in plaster of Paris: over which the skin was afterward stretched, and the whole is now mounted according to its measurements during life, in good preservation and is probably the most natural and accurate stuffed specimen extant. The skeleton and such portions of the body as were of particular interest were also preserved.

The errour and misrepresentation which has for ages existed as to the real nature and habits of the Orang Outang, and to which we are probably indebted for all our fabulous accounts of satyrs, fauns, and wild men of the woods, still to a certain extent prevails. The very name *Orang Outang* which is a Malay phrase signifying a *wild reasonable being*, would seem to show that the inhabitants of the island, where they are found, and to which this species appears to be confined, have, from their ignorance of its habits, contributed in no small degree to originate and continue the errour of their very close ap-



Portrait of an [Orang Outang.]

proximation to the intellectual, as well as to the physical man. Even in more modern times, when the progress of maritime discovery ought to have been the means of affording us a more accurate knowledge of the animals and productions of the countries visited, the stories of wonder, told of these larger kinds of monkeys, were as ridiculous and false as those of the ancients, and much more likely to mislead our judgement, for they were based professedly upon an intimate knowledge of the circumstances related, and on a personal observation of the individuals described; and until within a few years, many statements, exhibiting their great mental or intellectual superiority over most of the animal creation, and which have since been ascertained, and are now generally acknowledged as facts, were so *misrepresented* and *exaggerated*, as to prove the source of much disappointment to the most of those who have had an opportunity of seeing and examining the few Orangs, which have outlived their voyage.

All the living specimens of this species which have ever reached America or Europe, have been very young, and their manners, perhaps, as a consequence, mild and playful, for a very great difference between the characters of the young and adult may be inferred from the extraordinary difference which exists in the forms and shapes of the bones of the head, as well as in the external appearances and indications of countenance, as observed in the skeletons and stuffed skins preserved in the Leyden museum. That portion of scull containing the brain is but very little more capacious in the old than in the young subject. The muscles too which move the jaws are in the adult amazingly powerful, and a strongly marked ridge is formed on the head for their insertion, and farther the jaws become lengthened by age, in a most extraordinary manner. These changes together with a beard and a curious protuberance of thickened skin and fat on the cheek give to the adult male, quite a hideous and ferocious aspect. In fact it is only in young subjects that the resemblance to man in the appearance of the face is strongly marked. In the adult the similarity is not greater than in the dog-faced baboon.

Although much has of late years been added to

our information upon the subject of the Orang, still much remains to be discovered before our knowledge of these animals can be said to be any thing like complete. Dr. Harlan, of Philadelphia, in his valuable "*Medical and Physical Researches*," lately published, has contributed essentially to our knowledge of this genus. Dr. Clarke Abel has given us in his "Narrative of a Journey in the Interiour of China," a more scientifick and instructive as well as interesting and entertaining account of the appearance, structure, and habits of this animal, than is to be found in the writings of any other traveller or naturalist. The descriptive details of the one which he possessed, although apparently very carefully drawn, do not agree in all particulars with those observed in the subject of the present notice. One point we shall briefly advert to, inasmuch as the errour is not confined to his description alone; we have met with it in several authors. They state that the great toes or more correctly the thumbs of the lower hands are destitute of nails. In the case of Nancy, they were as fully developed on these as on any of the fingers.

It was to the enterprise and perseverance of Dr. Abel that the Naturalists of England are indebted for the introduction of the first living specimen about the year 1816. It measured two feet seven inches in height, and survived nearly two years. Another arrived in 1831 but died three days after. A third was exhibited the same year in London, and a fourth was kept for a short time during the year 1833 in the Tower. The fifth is the specimen which has recently been introduced into the Surry zoological gardens near London. It is a female nearly two years of age, two feet two inches in height, and whose weight does not exceed fifteen pounds. She is the only survivor of four, which were shipped at Calcutta, and her deportment during the voyage is represented as being very similar to that described by Dr. Abel. The very great sensibility of these interesting animals to the difference between their native climates, and those to which they are brought, renders it very probable, that their lives cannot be prolonged for many years in our cold and variable latitudes. The very circumstance that so few living specimens have been seen either in America or Europe, notwithstanding the almost universal curiosity which exists respecting them, is evidence of the immense risk and trouble incurred in attempting to import them. As yet, we believe, but two individuals of this species, the simia satyrus of Linnæus, have reached the United States. The first, about 1831, and which was exhibited in most of the larger cities of the Union. It did not exceed two feet six inches in height and lived only two years, notwithstanding great pains were taken to transfer it to a southern climate during the winter. It ultimately died in the city of New York, where its skin still exists as a stuffed specimen in Peale's museum. The second was, Nancy, whose portrait stands at the head of page 145. They were both females, and both young.

The full grown Orang has never been known in a captive state, and its appearance and proportions, were almost entirely subjects of conjecture and fable until latterly, when the enterprise of European naturalists succeeded in killing and bringing home the bones and skins of several specimens. The Museum of Leyden contains no less than six stuffed specimens and skeletons, two adult males, two adult females, a half grown male, and a young female. In these individuals the difference between the young and and old is so strongly marked, that they would scarcely be recognised as belonging to the same species, and fully exemplifies the remark before made, that the younger the animal, the greater its resemblance to the human face. The largest male is about five feet five inches in height the females are rather shorter.

These specimens were all killed on the island of Borneo, by a party of nearly one hundred men, who surrounded the portion of forest in which they were found. The following well authenticated account of the death of one of this genus, recorded among the "Transactions of the Asiatick society," will give some idea of their amazing strength, and of the difficulties and risk of obtaining them, even dead.

"A gigantick animal of the monkey-tribe, was discovered. On the approach of the party he came down from the tree on which he was seated, and sought refuge in another, at a small distance. He had the appearance of a tall figure, covered with shining brown hair, walking erect with a waddling gait, but sometimes helping himself forward with his hands, and at others with the bough of a tree, but it was evident that his movement on the ground was not natural to him. He passed with such rapidity from tree to tree, that it was difficult to take a steady aim at him. After receiving five musket balls, the animal became exhausted, and lying on the branch of a tree, vomited a quantity of blood. Believing that he would now be easily taken, his pursuers began to cut down the tree; but as it was in the act of falling, he began his retreat again with great activity, and it was not until the few trees on the spot were felled, that he could be brought to the ground. When in a dying state, the creature seized a spear, and with a force greater apparently than that of the strongest man, shivered it to pieces."

The only history we could obtain of Nancy, previous to her arrival at Philadelphia, was, that she was one of a pair which had been brought in a trading-vessel, from Borneo to Calcutta, where they were kept as curiosities, for two years, in the gardens of a Rajah in that vicinity. That during a stay of three months at Calcutta, they had been the subject of much attention, and had attracted the special notice of Sir William Bentick, the then governour-general of India. That after they had been purchased, and were about being embarked for this country, they were both violently seized with cholera-morbus, and notwithstanding the most scientifick treatment, the female alone survived. During the voyage she was for the most part confined to her cage; and her principal food was boiled rice, of which she consumed about one pint, three times a day, together with such fruits as they were able to preserve. She was exceedingly fond of cocoanuts, and was well acquainted with the method of extracting the milk, through one of the eyes. When in health, she is said to have been so strong, that if she once possessed herself of the end of a rope, not a sailor on board of the vessel, could pull it from her. Her age could not be correctly ascertained, but from appearances, until the period of her death, she was presumed to have been an adult. The teeth being

large and much worn, resembled those of an old subject. Subsequent examination, however, showed that she was comparatively young, as the second set of teeth were found just protruding through the jaw, but so covered by the soft parts, as not to be discernible during life. Her age therefore did not probably exceed five or six years.

Some idea of her superiority in "reasoning power," if we may so apply the phrase, over the ordinary specimens of the monkey-tribe, may be gathered from a few facts, which fell under the writer's immediate notice.

During the five weeks which he had an opportunity of observing her, notwithstanding she was constantly in the habit of using and handling vessels of glass and china, she never broke, nor suffered any of them to fall. Every article was handled with extreme care, and generally returned by her to its place. She was also very curious in the examination of articles, which were newly presented to her sight. After attentively looking at them, instead of carelessly throwing them down, as might have been expected, she invariably returned them, and generally into the hands of the individuals from whom she received them.

Upon a single occasion, a circumstance occurred, which evinced a judgement almost human. She was very fond of descending to the kitchen, and appeared much interested in observing the process of the culinary operations, and when unwatched, embraced every opportunity of stealing off to it. In the instance to which we allude, after looking about, she finally unbuttoned and opened the door of a closet, in which a basin of milk had been placed for the separation of the cream. After attentively looking at it, and on the several shelves, as if in search of something, she carefully closed the door, and presently taking a teacup from the table, she returned to the closet, and after helping herself to a cupfull of the milk, again closed the door, and replaced the cup whence she had taken it. A vial of medicine was carried into the room, and placed upon the mantlepiece. The attendants then left the room, but kept an eye upon her. On finding herself alone, she arose from the corner where she had been sitting wrapped in her blanket, took a chair and carried it to the fireplace, mounted on it, took down the vial of medicine, uncorked it, poured the physick over the floor, recorked the vial and replaced the chair, and then resumed her former seat.

In height, when standing erect, and with the arms extended upward, this animal measured three feet six inches, and at the period of her death, although much emaciated, was supposed to weigh between forty-five and fifty pounds. The arms were very long, and when hanging down reached nearly to the ancles.

The following are some of her measurements:—Length of arm from shoulder to tip of middle finger, on the inner surface, thirty-one inches; length of arm, ten inches; length of forearm, twelve inches; length from wrist to end of middle finger, nine inches; length of middle finger, five and a half inches; length of the thumb, three and a half inches; greatest breadth of hand, two and three fourths inches; from the tip of one middle finger, to the tip of the other, across the chest, with the arms extended, five feet eleven inches. The forearm was flattened on its inner surface. Length from hip-bone to heel, on the outer surface, eighteen and a half inches; length of thigh, ten inches; length of leg to ancle joint, seven and a half inches; from the heel to the end of middle finger, of the inferiour extremity, ten and one fourth inches; length of middle finger of same, five and a half inches; length of thumb of same, three and a half inches; length from ancle joint to root of nail of middle finger, eight and a half inches; circumference of chest over the armpits, twenty-one and a half inches; circumference at the base of chest, twenty-three inches; of the abdomen, or belly, at the navel, twenty inches; circumference over the hip-bones, nineteen and a half inches; diameter of the head through the ears, four and three fourths inches; from the occipital ridge to between the eyes, five inches; from the most projecting portion of the chin through the vertex, eight and one fourth inches; diameter through the centre of cheek bones, three and five eighths inches; diameter from one corner of the mouth to the other, two and one fourth inches; length of lower jaw, four and one half inches; circumference of jaw, six and a half inches; height of forehead from between the eyes to the commencement of hairy scalp, three inches; weight of brain, twelve ounces, one drachm, and two scruples, troy; the heart was six and a half inches in circumference, three and one fourth long, and weighed, two and a half ounces.

She was covered generally, with a coarse hair, of a brownish red colour, longest on the back, particularly over the shoulder-blades, where it measured nine inches in length; it was also longer on the outer surface of the arms, and on the inside of the thighs, as also in front over the chest and abdomen It was short on the back of the hands, and on each side, from the armpits down, it was but thinly scattered. The palms of the hands and feet were quite naked. The face had no hair except on its sides, somewhat in the manner of whiskers, and a very thin and short down or beard.

The direction of the hair was downward on the back, upper arm and legs, but upward on the forearm. It was directed from behind, forward on the head, and inward on the inside of the thighs. On the chest and abdomen, it was directed toward the median line. The prevailing colour of the skin, was a bluish grey. The eyelids and margin of the mouth, of a light copper colour. The inside of the hands and feet, of a deeper hue. On each side from the armpits down, was a copper-coloured stripe, which gradually extended and combined with the prevailing colour of the animal. The head when viewed in front was pear-shaped, expanding from the chin upward, the cranium being much the larger end. The eyes of a dark brown colour, and oval form, were placed close together. The eyelids were fringed with lashes, and the lower ones saccular and wrinkled.

The nose, confluent with the face, was but little elevated except at the nostrils, and the openings of it were narrow and oblique. The mouth of a roundish mamillary form, was very projecting, and its opening though large, when closed, was marked by little more than a narrow seam. The lips were very narrow, and scarcely perceptible when the mouth was shut. They, however, possessed remarkably great

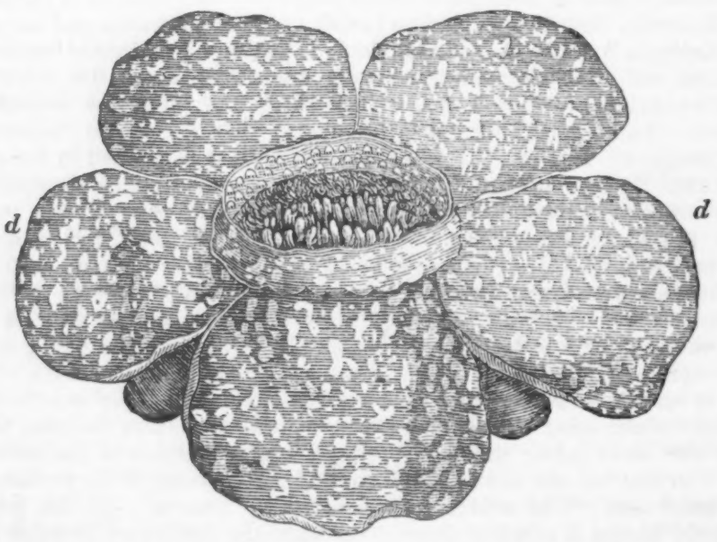
mobility, and variety of action, and from her frequent apparent attempts to convey the expression of her feelings and passions, by means of the various forms and shapes in which she placed them we hazard the opinion that such is their physiological use or destination; thus compensating in some measure, for the want of power necessary to produce a variety of sounds, which has been frequently noticed to exist in this species of animals.

The chin is much less prominent than the mouth, and the skin in front of the neck being loose and flabby, presented the appearance of a double chin; when the animal was angry, or much pleased, the swelling increased very much, and assumed the appearance of a large tumour. Each of the jaws contained twelve fully-developed teeth; they were probably the first or milk teeth, as the rudiments of the new set were sufficiently well marked. The ears, though small, closely resembled the human ear, and the lower margins of them were in the same line with the external angles of the eyes. The chest was rather wider than the pelvis, and the abdomen flattened. The arms were long, in proportion to the height of the animal, and the legs short, when compared with the arms. The hand was long, in comparison with its width, and with the human hand, the fingers tapering, the thumb very short, scarcely reaching to the first joint of the forefinger. All the fingers were terminated with perfect nails, of a blackish colour and oval form; they did not project beyond the tips of the fingers. The feet were long, resembling hands in the palms, and in having fingers rather than toes; but the heels resembled very much those of man. The great toes, or lower thumbs, were short, and set on at right angles to the feet, close to the heel. When walking on the ground, the feet were always turned with their palms inward, so that the only portion placed in contact with the surface, was the heel and outer edge of the foot, and the little toe or finger. The fingers or toes were doubled up, and the gait of the animal resembled very much that of the parrot.

It is much to be regretted that this interesting specimen should have died so soon after her arrival here, but we hope that the general curiosity on the subject will stimulate to renewed enterprise, and that we shall have an opportunity ere long, of again examining, and more minutely observing, the nature and habits of this remarkable species.

New York City, August, 1836.

BOTANY.



THE KRUBUT, OR GREAT FLOWER OF SUMATRA.

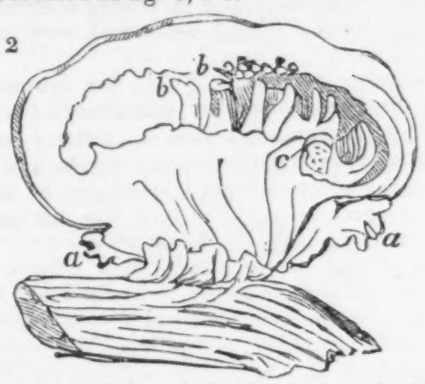
This very wonderful vegetable production has been named, in scientifick language, the *Rafflesia Arnoldi*. Its generick name is in honour of the late Sir Stamford Raffles, governour of Sumatra, and founder of the Zoological society, and its specifick name in memory of Dr. Arnold, who discovered it in 1818.

In writing on this subject, Dr. Arnold says: "At Pulo Labbar, on the Manna river, I rejoice to tell you, I happened to meet with what I consider the greatest prodigy of the vegetable world. I had ventured some way beyond the party, when one of the Malay servants came running to me, with wonder in his eyes, and said, 'come with me, sir come! a flower very large, beautiful, wonderful!' I went with the man about a hundred yards into the jungle, and he pointed to a flower growing close to the ground, under the bushes, which was truly astonishing. My first impulse was to cut it up and carry it to the hut: I therefore siezed the Malay's parang (a sort of instrument like a woodman's chopping-hook); and finding that it sprang from a small root, which ran horizontally (about as large as two fingers or a little more), I soon detached it, and removed it to our hut;" The above is a representation of the full-blown flower.

The Krubut is a parasite, growing in the woods, on the roots and stems of those immense climbing plants, generally of the genus *vitis* (or vine), which are attached, like enormous cables, to the largest trees of the forest. The flower constitutes the whole of this plant, there being no leaves, and neither roots nor stems. Thus, the plant forms a complete anomaly in the history of vegetables. It grows out of another plant in the manner of the mistletoe, and

not on the decayed surface of plants, as is the case with the common fern on the trunks of old oaks.

The flowers of this extraordinary plant are of one sex; and the male only has yet been sent to England. The breadth of a full flower exceeds three feet from the margin of the one petal *d* to that of the other *d*; the petals, or leaves of the flower, are roundish, and measure twelve inches from the base, to the apex. It is about a foot from the insertion of one petal to the opposite one; and that part which is considered the nectarium, or central cup of the flower, would hold twelve pints of liquid. The pistils, which are abortive, and as large as cow's horns, are represented in fig. 2, *b b*.



The weight of the whole flower is calculated at about fifteen pounds. It is of a very thick substance the petals and nectary being in few places less than a quarter of an inch thick, and in some parts three quarters of an inch; it is succulent in texture, but of a firm fleshy consistence. The flower, fully blown, was discovered in a jungle of Sumatra, growing close to the ground, under the the bushes, with a swarm of flies hovering over the nectary, and apparently laying their eggs in its substance. The colour of the five petals, or flower leaves, of which it is composed, is a brick-red, covered with protuberances of a yellowish white. The inside of the cup is of an intense purple, and more or less densely yellow, with soft flexible spines of the same colour. Towards the mouth, it is marked with numerous depressed spots of the purest white, contrasting strongly with the purple of the surrounding substance, which is considerably elevated on the lower side. The smell is that of tainted beef. The structure of this plant is too imperfectly known to admit of determining its place in the natural system. That learned botanist, Mr. Brown, however, thinks it will be found to approach near to the passion flowers. Its first appearance is that of a round knob, proceeding from a crack or hollow in the stem or root, as represented in the following cut fig. 1.

This knob, when cut through, exhibits the infant flower enveloped in numerous bracteal sheaths. These successively open and wither away as the flower enlarges, until at the time of full expansion, when there are but a very few remaining, presenting somewhat the appearance of a broken calyx, as represented in fig. 2, *a a*. The female flower differs but little in appearance from the male, further than in being without the anthers, fig. 2, *c*. Fig. 3 represents one of the anthers a little larger than the natural size, and shewing a section of the cavity in which it is immersed. It takes three months from the first appearance of the bud to the full expansion of the flower. The blossoms decay not long after their expansion, and the seeds (sporæ) are raised with the pulpy mass. The fruit has not yet been seen by botanists, but is said by the natives to be a many-seeded berry.

Mr. Brown has made some interesting observations on the *Rafflesia Arnoldi*, wherein he remarks, that it is not common for parasitick plants to fix indiscriminately on the roots or branches of their stocks, as is supposed to be the case with the genus Rafflesia; and observes, that "plants parasitick on roots are chiefly distinguishable by the imperfect development of their leaves, and the entire absence of green colour; that their seeds are small, and their embryo not only minute, but apparently imperfectly developed." Mr. Loudon says, that "the modes of union between a parasite and its supporter, or stock, vary in different genera and species of this class of vegetables. Some, as the misletoe and Rafflesia, depend on the stock for nourishment during the whole of their existence; others, as the common broom-rape, are originated in the soil; and afterward when they have attached themselves to their stock, the original roots die. Other parasites, again, are originated on the stock, and in their more advanced state produce roots of their own. In some cases the nature of the connexion between parasite and the stock is such, as can only be explained on the supposition that the germinating seed of the parasite excites a specifick action in the stock, the result of which is the formation of a structure, either wholly or in part derived from the root, and adapted to the support and protection of the undeveloped parasite; analogous, therefore, to the production of galls by the puncture of insects. On this supposition may be explained the connexion between the flowers of the genus Rafflesia, and the root from whence it springs."

In Sumatra, all the vegetable productions seem to be on a gigantick scale. Sir Stamford Raffles, after describing this great flower, says, "There is nothing more striking in the Malayan forests than the grandeur of the vegetation. The magnitude of the flowers, creepers, and trees, contrasts strikingly with the stunted, and I had almost said, pigmy vegetation of England. Compared with our fruit-trees, your largest oak is a mere dwarf. Here we have creepers and vines, entwining larger trees, and hanging suspended for more than one hundred feet, in girth not less than a man's body, and many much thicker; the trees seldom under one hundred, and generally approaching one hundred and sixty to two hundred feet in height." We reserve for another occasion, a description of the Rafflesia Patma, another giant parasite found in the shady thickets of Musa Kambagan, a little island which adjoins Java

[Baron Cuvier.]

ORGANICK REMAINS.

be impossible to find a more appropriate ...r an article on the subject of *Organick* than the likeness of the distinguished naturalist, Cuvier, who has prosecuted the study ... this branch of science, with great success, and who has contributed so much to its progress.

The study of American organick remains, opens a wide field to the naturalist which has as yet been but partially explored. Among those who have attended particularly to this subject, we may mention the names of Mitchill, Harlan, Jackson, Cleveland, Silliman, Hitchcock and others, to whose labours we shall recur hereafter. At present we shall present a brief summary on the subject, which is taken from Higgins' Earth ; this book forms the seventy eighth number of Harpers' Family Library, and deserves to be read with attention. Mr. Higgins remarks :—

"It has been already stated that many stratified rocks contain the remains of organized bodies, some of which are of the most remarkable character, and lead us to very important deductions. The wonder of thinking men has long been excited by the discovery of these in the solid strata of the globe, and that at great depths below the surface. There is evidence that they were objects of attention among the learned long before the science of geology had a name ; and some of the speculations which have reached us are little to be preferred to the notions of the most ignorant peasants of our own day. But since men have been engaged in geological investigations, the study of fossils has risen to great importance, and has conferred many advantages upon geology itself.

By the character of the organick remains found in a bed, the relative position and age of a deposite may, as we have already shown, be frequently determined, for every series of beds contains some which are peculiar to itself. It is not always possible to assign to a deposite its proper position in the geological series, by its mineralogical characters ; but if a collection of its fossils can be formed, the difficulty vanishes, and its relative age may be determined. Every series of beds, therefore, possessing fossils peculiar to itself, contains an index to its own mysterious history ; for not only can its position in the series be read, but also the circumstances under which it was formed.

The fact that every series of rocks contain fossils peculiar to itself, was first discovered by Lister, more than one hundred and fifty years ago, but the honour of demonstrating it by extensive observation is due to Mr. William Smith : and thus he has placed the naturalist, as well as the geologist, in a new position—inducing him to extend his observations into the bowels of the earth, where the remains of a race of beings before entirely unknown have been discovered.

The fossilized bones of animals are among the most singular organick remains. Baron Cuvier, the celebrated French geologist, was the first who commenced the study of these fossils. As an antiquary of a new order, to use his own words, he was obliged at once to learn the art of restoring these monuments of past revolutions to their original forms, and to discover their nature and relations. He had to collect, in their original order, the fragments of which they consisted, to reproduce the ancient beings to which they belonged, with all their proportions and characters, as well as to compare them with those which now live on the surface of the globe. In effecting these objects he was assisted by naturalists and geologists in various countries, and the characters of many singular animals have been determined.

REPTILES.

None of the results of modern geology have attracted so much of publick attention as the discovery of the remains of many gigantick reptiles. There has been a time in the history of our world when these animals attained an appaling magnitude, and rioting in the wide expanse of water, swayed the sceptre of uncontroverted power over all other created beings. The descriptions of the fabled monsters of antiquity, which have so often delighted our childhood, lose all their character of exaggeration when compared with those that have deen given of the reptiles whose bones are entombed in the solid strata of the globe. Some of these have evidently been fitted to live in the deep waters of the sea, while others in all probability inhabited lakes and rivers ; but they all appear to have existed at a period when our earth enjoyed a much higher temperature than it now possesses. Judging from the antiquity of the rocks in which the bones of reptiles are found, they appear to have been created a long period before the viviparous animals, and at a time when the earth was unfit for creatures of a higher organization.

The first appearance of the bones of reptiles is in the beds lying immediately above the coal measures, and they are found more or less abundant as high as the chalk deposite, but above this they entirely disappear. During some part of the time that intervened between the formation of these two deposites the reptiles must have existed in immense numbers, if we may calculate from the quantity of bones that are found. They are most abundant in a limestone rock, called the lias in which the bones of two

extinct marine genera, the ichthyosaurus and plesiosaurus, are very numerous.

THE ICHTHYOSAURUS.

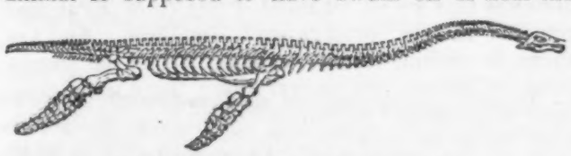
The ichthyosaurus, whose remains were discovered by Sir Edward Home, had a large head, enormous eyes, a short neck, and a very long tail. It was evidently destined to live in the sea, being furnished with four broad and flat paddles, which it used to force its way through the water, and to direct its course. This animal attained a length of from twenty to thirty feet. It had the head and

[The skeleton of the Ichthyosaurus.]

breastbone of a lizard, the muzzle of a dolphin, and the teeth of a crocodile; its eyes were immense, and its teeth conical and pointed.

THE PLESIOSAURUS.

The plesiosaurus resembles the ichthyosaurus in some particulars, and had four paddles of similar structure, but differed from all other animals in the extreme length of the neck, and the number of vertebræ of which it was composed. The neck of birds consists of more vertebræ than any other organized creatures, and contains from nine to twenty-three; and reptiles have from three to eight; but one species of the plesiosaurus has thirty. This singular animal is supposed to have swum on or near the

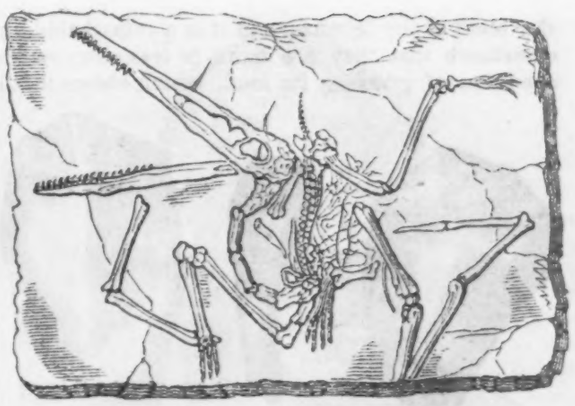


[The skeleton of the Plesiosaurus.]

surface of the water, carrying its head like a swan, and darting upon the fish on which it lived. For our knowledge of this interesting animal, we are entirely indebted to that very able geologist, Mr. Conybeare. When examining some vertebræ of the crocodile and ichthyosaurus, found in the neighbourhood of Bristol, he detected some remains among them which appeared to differ from those of both genera. This supposition was strengthened by finding, in the collection of Colonel Birch, a considerable portion of the skeleton of the animal, and he immediately commenced his researches, hoping to obtain other bones of the newly-discovered genus. and in 1821 published a memoir conjointly with M. De la Beche, describing its characters. At this time the head was wanting, but in the following year he obtained one that was tolerably perfect. In the year 1824, Miss Anning, of Lyme Regis, found a skeleton, nearly entire, by which Mr. Conybeare was able to complete his inquiries: such is the history of the circumstances by which we were made acquainted with the plesiosaurus.

THE PTERODACTYLUS.

The pterodactylus was a flying animal, which had the wings of a bat, and the structure of a reptile; jaws with sharp teeth, and claws with long hooked nails. The power which it had of flying was not

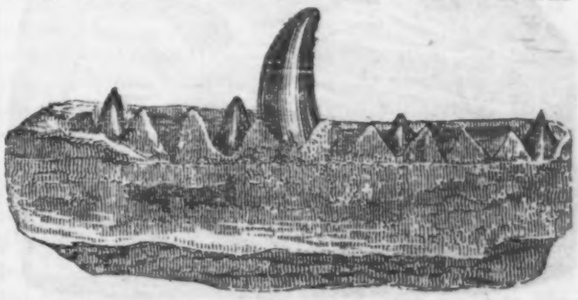


[The skeleton of the Pterodactylus.]

by means of its ribs, nor by wings without fingers, as in birds, but by wings supported by one very elongated toe, the others being short and furnished with claws. The remains of this animal were brought under examination by M. Collini, director of the Museum of the Elector Palatine at Manheim. There was at first some discussion as to the actual character of the animal. M. Blumenbach supposed it to be a bird, and M. de Soemmering classed it among the bats. M. Cuvier, however, maintained, that it was a reptile, and showed them all its bones, from the teeth to the claws, possessed the characters which distinguish that class of animals. But it still differed from all other reptiles in the capability of flying. It is probable that it could at pleasure fold up its wings in the same manner as birds, and might suspend itself on branches of trees by its fore toes, though it possessed the power of sitting upright on its hind feet. This is the most anomalous of all the fossil reptiles.

THE MEGALOSAURUS.

This monstrous animal must have been thirty or forty feet in length, and seven or more in height It was probably a terrestial animal, and from the form of its teeth, the structure of its jaws, and the bones of the extremities, we discover that it was



[Jaw of the Megalosaurus.]

allied to the recent monitor. The remains of this animal were discovered at Stonesfield, by our very eminent countryman Dr. Buckland.

THE IGUANODON.

The iguanodon was an herbivorous reptile, which differed from all the animals we have mentioned, and surpassed them in size. A thigh-bone of one specimen of this animal measured twenty-three inches in circumference. Other bones that were found were equally gigantick and its teeth were as large as the incisors of the rhinoceros. It derives its name from the resemblance between its teeth and

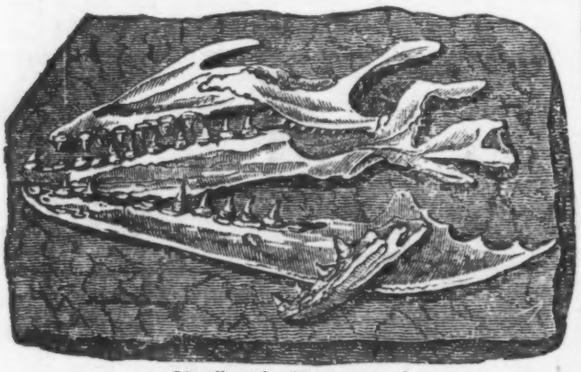
the teeth of the Iguana; and it is a remarkable circumstance that they are more or less worn by the operation of grinding its food, which shows that it

[Teeth of Iguanodon.]

performed mastication in the same manner as the herbivorous quadrupeds of the present day. It is generally supposed that this animal was shorter in proportion to its bulk than the recent lizards, to which it is nearly allied; but even with this supposition, it appears to have been fifty or more feet in length, and eight or nine in height.

THE MOSOSAURUS.

The remains of this animal were discovered by Hoffman. It appears to have formed a link between the monitors and the common lizards. A jaw of this animal measured three feet nine inches, and hence it was deduced that the entire length of the animal was about four-and-twenty feet. Its tail was much shorter in proportion to the length of its body than the crocodile, but very broad, so that by its means it could force its way through the most stormy waters. It has no relation to the crocodile except in some partial characters, and the bones of the hand and feet have led to the supposition that it possessed a contracted fin, not much unlike that of the Plesiosaurus.



[Scull of the Mososaurus.]

FOSSIL BIRDS.

The bones of birds are less frequently found in a fossil state than those of other classes of animals, so seldom indeed that some persons have absolutely denied their existence in that condition. Baron Cuvier, to whom the science of fossil organick remains is so much indebted, has detected and described at least eleven species of birds found in the gypsum of Paris, and among them a bone which greatly resembled that belonging to a preserved specimen of the celebrated Egyptian ibis.

FOSSILIZED REMAINS OF MAMMALIA.

The remains of mammalia have never been found in any bed below the chalk, and hence it is supposed that they did not exist untill the period immediately preceding the deposition of that rock. The existence of organick remains in rocks indisputably proves that every bed in which they occur has been at some period the superficial rock; for, whether the remains were brought from a distance, or the animals to which they belonged existed on the spot, it is certain they could not have been disseminated through the bed if it had not at that time been uppermost. When, therefore, the remains of any animals, or class of animals, are found in particular beds and not in others, we have evidence that the animal or class only existed during the period in which the beds themselves were deposited. It is by the admission of these principles that we deduce the non-existence of mammiferous animals previous to the formation of chalk.

Some few bones of individuals of the human race have been found in beds containing fossils, but in all instances there is reason to believe that they have been casually introduced at a very recent period. In turf-bogs, in alluvial deposites, in fissures of rocks, and in caves, the bony structure of man is sometimes found, but in no instance in such position as would lead us to suppose that our species was the contemporary of the palæotheria, or even of the mammoth and rhinoceros. It is true that human bones were found in some of the caves in France, and old pottery in some of those in Germany, but their situtions and circumstances clearly proved that they were of recent date, and could not claim the antiquity that we are compelled to give to the animal remains usually found in such situations. And yet there is nothing in the composition of the human bone to prevent its preservation; there is no principle of premature decomposition in its construction. The bones of men are equally well preserved in ancient sites of combat as those of the horse, and yet the latter are found in a fossil state. From these facts we deduce that the human race did not exist at the same time with these animals in places which the geologist has had an opportunity of examining. It is nevertheless possible that future inquiries in other countries may detect the presence of fossilized relicks of man, associated with the animals whose bones are found in the gravels and caves of Europe. It may also be mentioned that no remains of monkeys, the race which ranks next to man in anatomical construction, have hitherto been discovered, although the bones of animals which now inhabit the same woods with them are found in abundance.

For the knowledge that has been collected in reference to the nature of the mammiferous quadrupeds, we are chiefly indebted to the laborious researches of the late Baron Cuvier. There is a series of recent beds of gypsum, which occur in detached hills along the course of the rivers Marne and Seine, in which a great number of bones are found. The greater part of these belong to that order of animals which Cuvier has called the Pachydermata, or thick-skinned non-ruminant animals; but all the species, and many of the genera, are extinct; there is one in particular, called the palæotherium, that has some points of resemblance to the rhinoceros, the hippopotamus, the horse, the camel, and the pig. Eleven or twelve species of this ani-

mal have been found, the largest being about the size of a horse, the smallest not larger than a hare, but they all had fleshy trunks, like the tapirs, and lived on vegetables.

The anoplotherium is another extinct animal, and has two remarkable characters; the feet have only two toes, and the teeth are a continued series, without any intervening gap, which, except in this instance, is only observed in man.

In the superficial gravel-beds, and in some caves, a large number of bones of mammiferous quadrupeds have been found, belonging to both existing and recent genera; but in nearly all those instances where recent genera are found, the species are observed to be distinct from those now existing. A large number of the bones of hyænas, for example, have been found in some of the caves of Germany, as well as in the cave of Kirkdale; but Cuvier, after examining them very carefully, could not detect the existing species, though the animal had evidently all the habits which it is known to possess in the present day.

HEAT.

Among the mechanical means of producing, or rather of exciting heat, friction is perhaps the most usual and effective. In sawing wood, or boring metal, it may be observed that the substances thus exposed to friction soon become sensibly warm. The wheels of carriages sometimes take fire, from friction against the axles when in rapid motion. In some rude countries, as in Patagonia, the inhabitants avail themselves of this mode of procuring fire. They either rub together two pieces of hard dry wood till flame arises, or more artificially insert the blunt-pointed extremity of a rod of hard wood in a small cavity in a thick plank, and turning it with great velocity between their hands, thus obtain sparks and flame.

Count Rumford instituted some important experiments on the effect of friction in producing heat. Having observed that great heat was excited during the operation of boring cannon, he procured an unbored cannon, with the large projecting piece two feet beyond its surface, which is usually cast with the cannon to ensure its solidity; this projecting piece was bored and reduced to the form of a hollow cylinder, attached to the cannon by a small neck; the apparatus being wrapped in flannel to prevent the escape of heat, it was made to revolve on its axis by the power of horses, while a steel borer pressed against the bottom of the cylinder. The temperature of the metal at the commencement of the operation, was 60 deg.; and the cylinder, having made 960 revolutions in half an hour, it was stopped, and the temperature found raised to 130 deg. In another experiment a borer was made to revolve in a cylinder of brass, partly bored, thirty-two times in a minute; the cylinder was enclosed in a box containing eighteen pounds of water, the temperature of which was at first 60 deg., but rose in an hour to one hundred and sixty, and in two hours and a half the water boiled. Stockenschneider, an ingenious mechanick of Nieuburg on the Weser, invented a machine, by means of which great heat might be produced, and water boiled by friction. Air does not appear to be necessary to the production of heat by the attrition of solid bodies. Boyle procured sensible heat by making two pieces of brass move rapidly in contact under an exhausted receiver. Pictet, of Geneva, repeated the experiment with success, and found that the introduction of a soft substance between the rubbing surfaces, such as cotton, occasioned an increase of heat. Sir H. Davy insulated an apparatus for exciting heat by friction, by placing it on ice, in the vacuum of an airpump, under which circumstances heat was produced. He likewise ascertained that two pieces of ice might be melted by rubbing against each other, either in the air of a room below the freezing point, or under an exhausted receiver.

Compression produces heat either in solids, liquids, or gases. An iron bar may be hammered until it is red hot; and water strongly compressed gives out heat, as appears from the experiments of Dessaignes, as well as from the interesting researches of Mr. Perkins on the compressibility of liquids. Solids also give out heat when violently extended, as may be ascertained by stretching suddenly a piece of Indian-rubber, and immediately applying it to the lip, when a sensible degree of warmth will be felt. Mr. Barlow, in his account of some experiments on the cohesion of malleable iron, states it as a curious fact, and deserving the attention of philosophers, that frequently at the moment of rupture, the bar acquired such a degree of heat in the fractured part as scarcely to suffer a person to hold the bar grasped in his hand, without a slight painful sensation of burning.

But the effect of compression is exhibited in a more striking manner in the production of heat from gaseous fluids, as common air. When air is forcibly compressed by driving down the piston of a syringe, nearly closed at the end, great heat is produced; and syringes have been constructed for the express purpose of procuring fire, the heat evolved by the compression of air in this manner being sufficient to kindle dry tinder or touchpaper.

The chymical operations in the progress of which heat is produced are numerous, and among the most remarkable causes of the evolution of heat from bodies becoming united, so as to form chymical compounds, are those arising from combustion. All substances are not capable of undergoing combustion; and hence the division of bodies into two classes, namely: combustibles, or inflammable bodies, and incombustibles, or non-inflammable bodies. Among the former are vegetable substances in general, as wood, charcoal, and oils; most animal substances, as hair, wool, horn, and fat; and all metallick bodies. The class of non-combustibles includes stone, glass, and salts. The latter, when exposed to high degrees of heat, under such circumstances that they cannot undergo chymical decomposition, may be made to display the usual appearance of fire, or the combination of light and heat, variously designated by the terms glowing, red heat, or white heat, denoting different degrees of incandescence, and when cooled again to their original temperature, it will be found that little or no alteration has been produced by the high temperature to which they may have been exposed. But combustible bodies are very differently affected by heat. Some of them at comparatively

low temperatures, become combined with the oxygen gas contained in the atmosphere around them, and they all undergo similar transformations at certain temperatures, and during such processes heat in the form of fire is frequently exhibited.

Among the simple instances of the effect of chymical combination in causing the appearance of heat may be noticed the increase of temperature that takes place when water is mixed with alcohol, and which may be readily perceived on applying the hand to a vial containing the two fluids just after they have been introduced into it. But the mixture of water with sulphurick acid, or, as it is commonly called, oil of vitriol, causes a much greater augmentation of temperature than the preceding; for if an ounce of sulphurick acid be poured into a bottle, containing eight ounces of water, the glass will be so much heated as to render it impossible to hold it; and a more violent heat may be produced by increasing the proportion of the acid. Experiments on the mixture of sulphurick acid and water require caution, in consequence of the intense degree of heat produced by their combination.

REVOLUTIONARY REMINISCENCES.

BATTLE OF THE BRANDYWINE.

We had been in the saddle about an hour, under the intrepid Pulaski, who, with his own hands, examined our swords, pistols, and other equipments, as if assured that the struggle would be a deadly and long-continued one. The day was one of the most beautiful that ever broke over the earth. We were about half a mile from the main body, ranged along a green slope, facing the west, our horses, about four hundred in number, standing as patiently as so many marble statues, until just as the eastern sky began to redden and undulate, and cloud after cloud to roll up, and heave like a great curtain upon the wind; and the whole heaven seemed discharging all its beauty and brightness upon one spot.

I happened to turn about, and saw the tall Pole (Pulaski) bareheaded, tilting his horse, like some warlike presence come out of the solid earth, to worship upon the very summit of the hill behind us, it might be (for the noble carriage of the man, the martial bearing of the soldier, would permit either interpretation) in the awful employment of devotion, or in the more earthly one, of martial observation. But suddenly he reined up his charger, shook the heavy dew from his horseman's cap, replaced it, and leaped headlong down the hill, just as a bright flash passed away on the horizon, followed by a loud report; and the next instant a part of our ranks were covered with dust and turf, thrown up by a cannon-ball that struck near the spot he had just left.

Our horses pricked up their ears at the sound, and all at once, as if a hundred trumpets were playing in the wind, came the enemy in his advance. Pulaski unsheathed his sword, called out a select body, and set off at a full gallop to a more distant elevation, where he saw the enemy advancing in two columns; one under Knyphausen, which moved in tremendous steadiness, in a dark solid mass, towards the spot occupied by General Maxwell; the other under Cornwallis, which seemed to threaten the right flank of our main body. Intelligence was immediately sent to Washington, and reinforcements called in, from the post we had left.

We kept our positions, awaiting for a whole hour the sound of conflict; at last, a heavy volley rattled along the sky, a few moments passed, and then another followed, like a storm of iron upon the drum-heads. The whole air rung with it; another, and another followed; then, gradually increasing in loudness, came peal after peal, till it resembled a continued clap of thunder, rolling about under an illuminated vapour. But Pulaski, with all his impetuosity, was a general, and knew his duty too well to hazard any movement, till he should be able to see, with certainty, the operations of the enemy in the vapour below.

Meanwhile, several little parties that had been sent out, came in, one after the other, with the intelligence that Knyphausen had broken down upon Maxwell in magnificent style—been beaten back again; but that he had finally prevailed, and that Maxwell had retreated across the river. A thin vapour had now arisen from the green earth below us, and completely covered the enemy from our view. It was no longer possible to follow him, except by the sound of his tread, which we could feel in the solid earth, jarring ourselves and our horses; and now and then a quick glimmering in the mist as some standard was raised above it; some weapon flourished, or some musket shot through it like a rocket.

About an hour after, a horseman dashed through the smoke on the very verge of the horizon, and after scouring the fields, for a whole mile within view, communicated with two or three others, who set off in different directions; one to us, with orders to hurry down to the ford, where the commander-in-chief was determined to fall on Knyphausen with all his power, before Cornwallis came to his aid. It was a noble but hazardous game. And Pulaski, whose warhorse literally thundered and lightened along the broken and stony precipice by which we descended, kept his eyes warily to the right, as if not quite certain that the order would not be countermanded.

We soon fell in with General Greene, who was posting all on fire to give Knyphausen battle; and the next moment saw Sullivan in full march, over a distant hill towards the enemy's flank. This arrangement would, doubtless, have proved fatal to Knyphausen, had not our operations been unfortunately arrested, at the very moment we were prepared to fall upon him, man and horse, by the intelligence that Cornwallis had moved off to another quarter. It was a moment of irresolution—doubt. It was the death-blow to our brilliant hopes of victory. Greene was recalled, and Sullivan commanded to halt.

Hardly had this happened, our horses being covered with sweat and froth, fretting on the bit like chained tigers, and ourselves covered with dust, it being an excessively hot and sultry day, when a heavy cannonade was heard on our right flank, and Greene, to whose division we had been attached, was put in motion towards Sullivan, whom we had left some hours before. The truth now broke upon us like a thunderclap. The enemy had passed, concentrated, as we supposed, and fallen upon our right.

I shall never forget Greene's countenance, when the news came; he was on the roadside, upon an almost perpendicular bank; but he wheeled where he was, dashed down the bank, his face white as the bleached marble, and called to us to gallop forward, with such a tremendous impulse, that we marched four miles in forty minutes. We held on our way in a cloud of dust, and met Sullivan all in disorder, nearly a mile from the field, retreating step by step, at the head of his men, and shouting himself hoarse, covered with blood and sweat, and striving in vain to bring them to a stand, while Cornwallis was pouring in upon them an incessant volley. Pulaski dashed out to the right, over the broken fences, and there stood awhile upright in his stirrups, reconnoitring, while the enemy, who appeared by the smoke and the dust that rolled before them in the wind, to be much nearer than they really were, redoubled their efforts; but at last, Pulaski saw a favourable opportunity—the column wheeled; the wind swept across their van, revealing them like a battalion of spirits, breathing fire and smoke. He gave the signal; Archibald repeated it; then Arthur; then myself. In three minutes we were ready for the word.

When Pulaski, shouting in a voice that thrilled through and through us, struck spurs to his charger, it was half a minute, so fierce and terrible was his charge, before we were able to come up with him. What could he mean? Gracious Heaven! my hand convulsed, like that of a drowning man, reined up for a moment when I saw we were galloping straight forward into a field of bayonets; yet he was the first man! and who would not have followed him.

We did follow him, and with such a hurricane of fire and steel, that, when we wheeled, our whole path lay broad before us, with a wall of fire on the right hand and the left; but not a bayonet or a blade in front, except what were under the hoofs of our horses—my blood rushes now, like a flash of fire through my forehead, when I recall the devastation that we then made, almost to the very heart of the enemy's column.

But Pulaski, he who afterward rode into their intrenchments on horseback, sword in hand, was accustomed to it, and having broke over them once, aware of his peril if he should give them time to awake from their consternation, he wheeled in a blaze of fire, with the intention of returning through a wall of death, more perilous than that which shut the children of Israel, upon the Red sea. But lo! the wall had rolled in upon us; and we were left no alternative, but to continue as we had began.

The undaunted Pole rioted in the excess of his joy. I remember well how he passed me, covered with sweat and dust, riding absolutely upon the very points of their bayonets. But, at last, they pressed upon him, and horseman after horseman fell from our saddles; when we were all faint and feeble, and even Archibald was fighting on foot, over his beautiful horse, with Arthur battling over his head, we heard the cry of "Succour, succour!" Immediately we felt the enemy give way, heaving this way, then that, and finally concentrated beyond us.

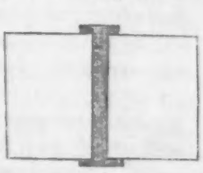
"Once more! once more!" cried Pulaski, and away he went, breaking in upon them as they were forming, and trampling down whole platoons in the charge, before a man could plant his bayonet or bring his gun to an aim; our aspect as we came thundering round upon them, was sufficient; the enemy fled, and we brought off our companions unhurt.

I have been in many a battle, many a one that made my hair afterward stand when I dreamed of it—but never in one where the carnage was so dreadful, and fire so incessant, as that which followed the arrival of Greene. But the enemy had so effectually secured his exposed points by ranks of men kneeling with planted bayonets, that we could make no impression upon them, although we rode upon them again and again, discharging our pistols in their faces.

LADIES' DEPARTMENT.

AMUSEMENT AT HOME.

To Make Writing Folios.—The outside of the writing folio may be ornamented in a variety of ways. If made of wood, with Grecian painting, transferring, inlaying or japanning; if of paper or card-board, with Oriental teinting, mezzoteinting, or any style of drawing or painting. We shall explain how the latter are made up, and that will show how to put together the former. The sides may be of mill-board, paste-board, or card-board; the former is cheapest but the most difficult to be cut; yet it is upon the whole to be preferred, because least likely to twist. Paste-board and card-board may be cut into the proper form with large scissors, mill-board with a sharp-pointed penknife. Having marked the form for one side with a blacklead pencil, (about nine inches and a half by twelve will be well-proportioned,) place the mill-board upon some very hard surface, a flat sheet of pewter is the best for the purpose, but hard wood will do if the pewter is not easily obtained. Let the flat ruler be placed on the line and kept steady by a firm pressure of the hand, or a very heavy weight placed on it; then guide the knife carefully along the edge of the ruler, slowly at first, and lightly but quicker as you proceed until the line has been cut through; by this means any thickness may be penetrated. Having in this way cut all the four sides of each of the two parts back and front of the folio, the leather for fixing the two together may be put on. Some kid, leather may be obtained at a leather-seller's: cut out a strip about thirteen inches in length and an inch and a half wide, also another strip eleven and three quarters in length, and an inch in width; paste the the former well and lay the two boards upon it, at about one third of an inch distance from each other; and let there be an equal length of leather above and below to be turned down; after which paste the other strip,

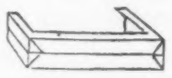


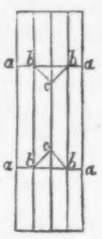
and lay it equally on the boards, so that there may be as much on one side as on the other. When this has been done, place something flat and heavy upon it for an hour, and then put on the inside lining. Supposing it to be lined with embossed paper, let two pieces be cut out about half an inch larger than the mill-board all round the outside of it, to allow for turning down. Let these be pasted sparingly all over with thick paste and put on the in side, so as to

leave in the middle about a third of an inch, the distance the mill-boards are from each other, then cut away a piece from each corner and turn the sides down, that the edge of the mill-board may be covered; now, if the outside of the folio is to be covered with embossed boards, let them be cut to the size of the front and back, so as to come close to the leather, but not to lie over it; paste them well, particularly toward the edges, and immediately put them in press, where they should remain for an nour, after which the folio may be doubled to its proper form, and a piece of wood, or mill-board of something less than a third of an inch in thickness may be put between the covers; but it must be covered wtth a soft cloth to prevent its flattening the embossed paper which is inside, and then some heavy books may be placed on it for a day or two, until it has dried thoroughly and is quite firm. The drawings you intend to put may then be cut out to the form of the flat centre of the embossed boards, and pasted on with thick paste spread over them sparingly. It may then be pressed again for an hour, to make these adhere, when the riband for the inside may be put on by stitching it at the top and bottom of the leather; afterward the blotting paper may be cut out, and put under the riband, and to make it fit well, the corner of the paper where it passes under the riband should be cut off: the blotting paper should be about a quarter of an inch smaller than the folio all round, and a sheet of the embossed paper, with which the book is lined, may be put outside the blotting paper, to give a finished appearance to the inside.

If there are pockets and ribands to tie, the ribands are let in before the lining is put on. Cut a line of the width of the riband through the card and mill-board, at an inch distance from the edge, pass the riband through this opening, and paste or glue down about an inch in length inside, turning it towards the outer edge of each board.

Pockets may be made to open at the outer edge, or towards the middle of the book. Cut a piece of card-board or thin mill-board, about the thickness of the cover less than the cover all round, then cut out two pieces of paper, or Irish, or leather, a little longer than the top and bottom of the cover, and narrower at one end than the other: if you intend to make it open one inch when finished, it should be cut two inches wide at the broad end, and one inch at the narrow. Turn down a piece at the top to strengthen it and make it the proper length; then double it exactly in half, lengthwise on the line *a b* and back again on the lines *c b*, let one side of this be pasted on to the outside of the card or mill-board already prepared, and the other side on to the inner part of the portfolio. The lining may next be pasted on, having it long enough to admit of being turned in at the top to give a neat finish, and it should approach quite close to the sides, but not to turn over them. When this has been pressed and is dry it will open and shut very freely. Sometimes you may desire to make a pocket that will open equally wide at each end; to accomplish which, the piece of paper, Irish, or leather for the sides, must be cut long enough to go all round the three sides, and must be of an equal width all along. The difficulty in this case is to turn the corners so as to prevent their having a ruffled and clumsy appearance. First, it must be doubled in half as before, and each half back in in half again; then opening it flat, double it across at the proper distance for the corners, and cut it through from *a* to *b*, fold it as at the marks *b c*, and turn up the sides when it will have the appearance of the second figure, push in the sides and bottom, and you will find that it folds quite flat and smooth, it may now be pasted well over the upper and lower edges and fastened to the covers.





Sometimes pockets are made to open from the outside, and sometimes the middle of the book; but we prefer that they should open in the middle of the book, principally because there is less risk of losing scraps and memoranda when so made; another advantage of this plan is, that if there be many things in the book they naturally fall towards the middle when it is closed, and if the opening be at the outside, when the book is closed, they fall to that part which has least space to receive them, particularly when the pocket has been made according to the former, which is the more frequent of the two plans now taught. As it is not quite so easy to get at papers when the pockets are made towards the middle as when made towards the outside, some have secured the advantages of both forms, by making a flap to fold over the front of the book, and then by shaking it two or three times on a table the scraps or papers have come toward the widest part of the pockets without falling out; but upon the other plan this is unnecessary, and therefore we prefer it.

INFLUENCE OF DRESS ON THE HEALTH.

It is well known that the constraints of dress impede the functions of the digestive organs, and lay the foundation of many diseases. It is equally known that such constraints produce the worst effects on the function of respiration, and consequently, on that of circulation generally. It is not less known, that such constraints, acting on the cellular tissue around the bosom, are not only injurious to the beauty of its form, but expose it to future diseases of the most dangerous kind.

In the same manner, want of e ercise prevents all the organs from acquiring that firmness of structure which renders their movements more effective and useful. As, moreover, active exercise, which brings into action a number of muscles, does not confine its effects to the parts in motion, but influences also the great vital organs contained in the trunk of the body; so does repose of all the muscles influence, in an opposite manner, all the same organs of life.

Want of exercise prevents the liquids from experiencing that transpression which perfects them, by passing frequently through various vessels and filters. Stagnating from want of action on the part

of the solids, they spontaneously alter; their composition is deranged; the elements which form them either separate or produce new combinations. It would indeed appear, that from want of exercise, every vital function decreases in energy, except, in some persons, the oily secretion.

"It is," says Cabanis, "for the most part only the want of bodily movement and respiration in the open air, and some other errours in regimen, food, clothing, &c., which render young women so often ailing, which retard, or derange, or prevent some of their *essential* functions, and which make of them deplorable victims at the age of nubility and of happiness."

THE INJURY THUS DONE TO THE MENTAL ORGANS AND FUNCTIONS, OR THOSE ON WHICH THOUGHT DEPENDS.

The physical constraint to which young women are subjected, is necessarily attended by a mental constraint, which is absurdly mistaken for the means of education. It is indeed for the sake of this education, wretched as it is! that much of this constraint is endured. By the word education is meant, not the attention bestowed upon developing the physical and moral faculties, but simply the precocious acquirement of a little fancy needlework, a little French, a little Italian, a little singing, a little dancing, &c.; and this being acquired, the happy parents regard their daughter not as a puppet, mentally as well as bodily enfeebled, but as a model of perfection. If, during the ill-timed struggle to attain this, the young lady's physical constitution has been unable to unfold itself, and she remains weak, pale, and nervous, this is imputed to original constitution; and the ruin of strength and health, is thus compensated for by the most slight and superficial acquirements.

They forget that, as observed by Dr Duffin, "in the philosophy of education, doubling the power does not always double the effect. The second hour of study is seldom half so good as the first; the third is much worse than the second . . . Experience teaches us, besides, that nothing would be lost by the intervention of amusement, but that an actual accession would be made to the acuteness of the individual."

They forget that those to whom the education of woman is intrusted, ought to know something of her temperament in general, and of her mind in particular. Anthropologists have observed that the temperament of woman is that of infancy, and that it is marked by weakness and sensibility. The weakness of woman arises from the extreme tenderness of the fibres of which the muscles are composed, the greater quantity of the cellular tissue which unites them, and the abundance of the juices which moisten them. This delicacy seems to be naturally accompanied by an openness to impressions, and a sensibility which is lively and easily excited; for when the weakness of woman is increased by any circumstances, the delicacy and susceptibility of the organs become greater, aud the sensibility increases to a malady.

Thus is woman far more sensible than man. As, moreover, all the parts and tissues of which woman is formed, are finer, more delicate, and more supple, this smallness induces agility; for it is a rule almost without exception, that the smaller animals are, of their particular kind the more rapid and multiplied their movements. Thus is woman, by nature, far more inclined than man to movement, however slight its description. Indeed, muscular movement and the development of sensibility arise from a common principle, nervous action, which must be equally employed in both these phenomena. Now, as exercise strengthens the body, it is easy to conceive that repose must accumulate sensibility; and that unless they alternate with each other, either the one or the other is generated in excess. Accordingly, in leaving unemployed a considerable part of the muscular fibres, repose enfeebles them directly, and it permits the forces which should actuate them in muscular motion, to follow the central tendency which carries them towards the nervous system. By this means, all the functions more directly dependant on sensibility acquire great predominance over those which are, properly speaking, only a series of physical movements.

Hence, nothing so much foments the passions as solitude and inaction. All the ills, indeed, which afflict the luxurious women of our great cities are a consequence of this errour. Lounging on soft couches, protected from cold, heat, atmosphere, and light, they are afraid of every thing, shun every thing, and suffer as much as the unsheltered wretch.

We every day see that if sensibility acquire that influence, which in females of a certain class, the inaction of the muscles and the development of the passions cause it to usurp, the vital powers soon fail in the regularity of their action, and the mental powers become perverted, and in their aberrations, produce nervous diseases.

Hence, then, spring all those convulsive maladies which are much more frequent in feeble and delicate women than in others. They are, indeed, the natural punishment of a life passed in luxury and indolence.

In woman, there is nothing, not even aberration of intellect, erotick and religious insanity, which is not ascribable to the cause now described.—All her good and all her bad qualities, are the consequences of her weakness and sensibility.

OF THE PARTICULAR AND SPECIAL UTILITY OF EXERCISES.

I HAVE stated that the effect of exercise is, by frequent contraction of the fibres, to render the muscles stronger, and generally to give more strength to the organs.

Nothing evidently can be more suitable to the organization of woman. Her tissues are soft and flexible; exercise renders them more firm and resisting: her fibres are thin and weak; exercise increases their size and strength.

In regard to strength in general, it may be observed that, in the present state of society, we have less need of it, than the people of ancient times. Muscular strength is a kind of superiority no longer in such favour, and the aim of gymnasticks is consequently nothing more than to endow the body with all the strength, vigour, and activity, compatible with health, without injury to the development of the intellectual faculties.

Moreover, the education which is suited to the male, is not calculated to render the female amiable and useful in society.

This is an observation of all times. The ancients

were too good observers not to know that woman, by her less stature, her weaker organization, her predominant sensibility, and her peculiar function of educating a family, was not destined by nature to such toilsome labours as men. We seek, accordingly, to develop in woman that modesty and gentleness which are proper to her, that soft and attractive air which characterizes her, and those seductive graces which distinguish her. The constitution of women, indeed, bears only moderate exercise. Their feeble arms cannot support severe and long-continued labour. It renders them meager, and deforms the organs, by compressing and destroying that cellular substance which contributes to the beauty of their outlines and of their complexion. The graces accommodate themselves little to labour, perspiration, and sun-burning.

We must not, however, conclude from this, that females should be kept in a state of continual repose, or that the delicacy of their organization prevents their taking exercise. It is a fact, that labour, even the most excessive, is not so much to be feared as absolute idleness. The state of want which forces some women of the lowest class to perform labours that seem reserved for men, deprives them only of some attractions. Excessive indolence, on the contrary, destroys at once health, and that which women value more than health, though it never can subsist without it, namely, beauty. The more robust state of health in females brought up in the country, is attributable to the exercise they enjoy. Their movements are active and firm; their appetite is good, and their complexion florid; they are alert and gay; they know neither pain nor lassitude, although they are in action without cessation under all kinds of weather. It is exercise which gives them vigour, health, and happiness—exercise to which they are so frequently subjected, even in infancy and youth. We observe, also, that in a family where there are several sisters of similar constitution, the one who from circumstances has been accustomed to regular and daily exercise, almost always possesses most strength and vigour. Mothers and teachers, therefore, instead of fearing that their children should fatigue themselves by exertion in active sports, should subject them early to it. They will thus give them more than merely life and instruction; they will confer on them health and strength.

But some mothers are afraid to see their daughters entering with spirit into exercises, and are of opinion that health cannot be obtained without sacrificing the graces, which a female who is intended for society, should possess. They may rest assured that no recommender of exercise would endeavour to make a stout robust woman of a little, delicate, and nervous girl, or would prescribe for her the female gymnasticks of the half-naked women of Lacedemon, as instituted by Lycurgus. What we can, and what we should endeavour to do, is to obtain a good constitution, absence from all deformity, and sufficient strength to prevent the display of vicious sensibility, but not to destroy that delicacy and those attractions which constitute beauty and grace.

But it may be feared that the peculiar structure and the natural weakness of woman, may render dangerous the exercises intended to combat it.

Those who make such objections should recollect that the circumstances which distinguish the sexes, and which modify them, remain imperfect and without action, until the age of puberty, and that children of both sexes have nearly the same appetites, the same wants, and the same inclinations. It is hence we recognise in them nearly the same physiognomy, a similar tone of voice, and similar manners. This will be the less surprising, when it is known that the internal organization, even the structure of the bones, has a greater resemblance in early life than at a subsequent period. Thus, until they arrive at maturity, the pelvis or basin, is rarely larger than in youths. Hence all the exercises which depend upon position and walking, will not be more difficult for them than for boys; while, for full-grown women, these exercises are more difficult and embarrassing.

This community of structure, as well as the fact that, at this early age, activity, restlessness, and the desire of motion are remarkable in girls, all point out the danger of repose. Instead, therefore, of being afraid of exercise for young girls, they should be subjected to it as soon as possible; and, when this is the case, they uniformly prove the truth of the observation, made by teachers of exercises, that females, in agility, precision, and address, surpass boys of the same age. So much for the effects of exercise upon the locomotive system.

With regard to the vital or nutritive system, it is not less certain that exercise augments the circulation and respiration, and perfects the formation of the blood and the nourishment of the body, in the same proportion in which the power of the lungs is developed.

By carrying toward the exteriour the forces which, during a state of repose, tend almost always to concentrate themselves either in the brain or in the abdominal organs, exercise makes of these forces a more exact distribution, re-establishes or maintains their equilibrium, and, by exciting the circulation, provokes the insensible perspiration, without which health and beauty are impossible.

In relation to the diseases of this system, it is evident that, when the circulation is reanimated and accelerated, fewer engorgements of blood take place in the abdominal and inferiour regions.

In regard to the mental system, exercise, while it increases the activity of the muscles, prevents, as we have seen, the vicious predominance of the sensitive system. Diseased sensibility can never exist where the constitution has not been suffered to become enervated by indolence. When external agitation employs our faculties, the interiour reposes. If already the defective power of the mental functions tend to too vivid mobility, exercise gives them more of the stability of energy. The nervous susceptibility, which is increased by weakness, is reduced to its proper degree, as soon as exercise has strengthened the organs. By this useful diversion, the affections of the heart are calmed. But this is not all: by diminishing the causes of exaggeration in the affections and passions, mildness and goodness, the most certain sources of happiness, remain in conjunction with health.

There can, therefore, be no doubt of the utility of exercise in remedying whatever may be defective in the female organization, and laying the foundation of a constitution exempt from infirmities and disease.

MISCELLANY.

THE WHITE INDIANS.

It is a fact, perhaps not generally known, that there does exist in the far west, at least two small tribes or bands of white people. One of these bands is called *Mawkeys*. They reside in Mexico, on the southwest side of the Rocky mountains, and between three hundred and five hundred miles from Santa Fe, towards California; and in a valley which makes a deep notch into the mountain, surrounded by high and impassable ridges, and which can only be entered by a narrow pass from the southwest. They are represented, by trappers and hunters of the west, known to the writer of this, to be men of veracity, to be an innocent, inoffensive people, living by agriculture, and raising great numbers of horses and mules, both of which are used by them for food. They cultivate maize, pumpions, and beans, in large quantities.

These people are frequently plundered by their more warlike neighbours; to which they submit, without resorting to deadly weapons to repel the aggressors.

Not far distant from the Mawkeys, and in the same range of country, is another band of the same description, called *Nabbehoes*. A description of either of these tribes, will answer for both. They have been described to the writer, by two men in whose veracity the fullest confidence may be placed; and they say the men are of the common stature, with light flaxen hair, light blue eyes, and that their skin is of the most delicate whiteness. One of my informants who saw seven of these people at Santa Fe, in 1821, in describing the Mawkeys, says:—"They are as much whiter than I am, as I am whiter than the darkest Indian in the Creek nation;" and my informant was of as good a complexion as white men generally are.

A trapper on one occasion, in a wandering excursion, arrived at a village of the Mawkeys. He was armed with a rifle, a pair of belt-pistols, knife and tomahawk; all of which were new to them, and appeared to excite their wonder and surprise. After conversing some time, by signs, he fired one of his pistols; instantly the whole group around him fell to the earth, in the utmost consternation; they entreated him not to hurt them, and showed in several ways, that they thought him a supernatural being. He saw vast numbers of horses and mules about the village.

Western Democrat.

PECULIARITIES OF THE DAYAK.

The most numerous class of the inhabitants of Borneo, and probably the aborigines, are the Dayak. Their manners are characterized by some strange peculiarities, and uncommon features of barbarism; but the spirit of these traits has never been elucidated, nor the system of religious or superstitious opinion with which they are connected, examined.

In appearance, the Dayak are fairer and handsomer than the Malays; they are of a more slender make, with higher foreheads and noses; their hair is long, straight, and coarse, generally cut short round their heads. The females are fair and handsome. Many of the Dayak have a rough, scaly scurf on their skin, like the Jacong of the Malay peninsula. This they consider as an ornament, and are said to acquire it by rubbing the juice of some plant on their skin. The female slaves of this race which are found among the Malays have no appearance of it.

With regard to their funeral ceremonies, the corpse is placed in a coffin, and remains in the house till the son, the father, or the nearest of blood, can procure or purchase a slave, who is beheaded at the time that the corpse is burnt, in order that he may become the slave of the deceased in the next world. The ashes of the deceased are then placed in an earthen urn, on which various figures are exhibited, and the head of the slave is dried, and prepared in a peculiar manner with camphire and drugs, and deposited near it. It is said that this practice often induces them to purchase a slave guilty of some capital crime, at fivefold his value, in order that they may be able to put him to death on such occasions.

With respect to marriage, the most brutal part of their customs is, that nobody can be permitted to marry till he can present a human head of some other tribe to his proposed bride, in which case she is not permitted to refuse him. It is not, however, necessary that this should be obtained entirely by his own personal prowess. When a person is determined to go a head-hunting, as it is often a very dangerous service, he consults with his friends and acquaintances, who frequently accompany him, or send their slaves along with him. The head-hunter then proceeds with his party in the most cautious manner, to the vicinity of the villages of another tribe, and lies in ambush till they surprise some heedless, unsuspecting wretch, who is instantly decapitated. Sometimes, too, they surprise a solitary fisherman in a river, or on the shore, who undergoes the same fate. When the hunter returns, the whole village is filled with joy, and old and young, men and women, hurry out to meet him, and conduct him, with the sound of brazen cymbals, dancing in long lines to the house of the female he admires, whose family likewise comes out to greet him with dances, and provide him a seat, and give him meat and drink. He still holds the bloody head in his hand, and puts part of the food into his mouth, after which, the females of the family receive the head from him, which they hang up to the ceiling over the door.

If a man's wife die, he is not permitted to make proposals of marriage to another, till he has provided another head of a different tribe, as if to revenge the death of his deceased wife. The heads procured in this manner they preserve with great care, and sometimes consult in divination. The religious opinions connected with this practice are by no means correctly understood: some assert, that they believe that every person whom a man kills in this world, becomes his slave in the next. The Idaan, it is said, think that the entrance in Paradise is over a long tree, which serves for a bridge, over which it is impossible to pass without the assistance of a slave slain in this world.

The practice of stealing heads causes frequent wars among the different tribes of the Idaan. Many persons never can obtain a head, in which case they are generally despised by the warriours and the women. To such a height it is carried, however, that a person who has obtained eleven heads has been seen, and at the same time he pointed out his son, a young lad, who had procured three.

LITERARY NOTICES.

Sheppard Lee. Written by HIMSELF. In two volumes. New York: Harper & Brothers. One of the most amusing books that has been published for a long time, and one for which we predict an extensive demand. The author not only entertains us with his own adventures, and the details of his own life, but having been so unfortunate as to be drowned, his spirit passes successively into the lifeless bodies of Dawkins, a decayed dandy, Skinner, a shaver of all kinds of securities, Longstraw a philanthropick philanthropist, Tom, a Virginia negro, and Megrim, a dyspeptick fashionable. The book will well repay one for its perusal.

A Compendious History of Italy. Translated from the original Italian. By NATHANIEL GREENE. This book forms the seventy-ninth number of Harpers' Family Library. It is a brief and concise history of Italy, from the earliest ages to the present time, translated from an Italian author of great repute. The translation is well executed and retains in an eminent degree the spirit of the original. We hope Mr. Greene will be induced to give us something else from the Italian.

The History of Virgil A. Stewart, and his Adventure in Capturing and Exposing the Great "Western Land Pirate," and his Gang, in Connexion with the Evidence also of the Trials, Confessions, and Execution of a number of Murrell's Associates in the State of Mississippi, during the Summer of 1835, *and the Execution of Five Professional Gamblers, by the Citizens of Vicksburgh, on the sixth of July,* 1835. Compiled by H. R. HOWARD. New York: Harper & Brothers. The title of this book explains sufficiently the nature of it. It is a brief and exciting narrative of a gallant enterprise for the capture of one of the most villanous desperadoes that has ever infested this or any other country. The South and Southwest are under incalculable obligations to Mr. Stewart. The appendix amply refutes all the charges made against Stewart's private character.

Harry and Lucy, with other Tales. By MARIA EDGEWORTH. In two volumes. New York: Harper & Brothers. These tales are, as it is well known, particularly adapted for youth; they are now collected in an elegant form and published uniformly with the other works of Miss Edgeworth.

The first volume of the *Western Messenger, Devoted to Religion and Literature,* which is published at Louisville, Ky., by Messrs. Morton & Smith, is just completed. This highly successful and entertaining periodical contains much that is interesting to our Northern friends; we have marked the article on the manners and habits of the Western Pioneers for insertion in the pages of the Family Magazine. As a new volume commenced in August, the present is a good opportunity for subscribing. The price of this periodical is only three dollars per annum.

Petit Courrier des Dames, or Monthly Journal of Fashion. New York: Behr & Astoin. This publication, the fit companion of a lady's boudoir, was commenced in April last; it appears regularly on the first and fifteenth of every month, and each number presents sixteen pages of letter-press and three or four coloured plates. The design of the undertaking is to put the American ladies in possession of the late fashions, and for this purpose the plates are shipped from France, one week before they are published there. The letter-press consists of prose and poetry, part of which is original, and the rest selected with great discrimination and good judgment from the popular periodicals of the day. The work is conducted with spirit, and we hope that it will be encouraged. Six numbers have now been issued.

Lord Roldan, a romance. By ALLAN CUNNINGHAM. New York: Harper & Brothers, 82 Cliff street. One of Harpers' wonderfully cheap fifty-cent books; and one of the happiest efforts of Allan Cunningham, whose reputation as a writer of light literature in England is deservedly high.

We have received the second edition of *The Philosophy of Living, or the Way to Enjoy Life and its Comforts.* By CALEB TICKNOR, M. D. We are happy to see that the reading publick appreciate the merits of this valuable book. The second edition has been revised and improved and an appendix of curious matter has been added to it.

From the office of the Family Magazine, we have a superb mezzotint engraving of the lamented Madison, by Sartain of Philadelphia, from Mr. J. G. Chapman's celebrated portrait, painted by him at Montpelier, and which is admited by all who have seen it, to be *the authentick likeness* of the venerable Ex-President.

The following notice of this print is valuable as coming from the pen of one who had frequent opportunities of a personal intercourse with this distinguished individual:—

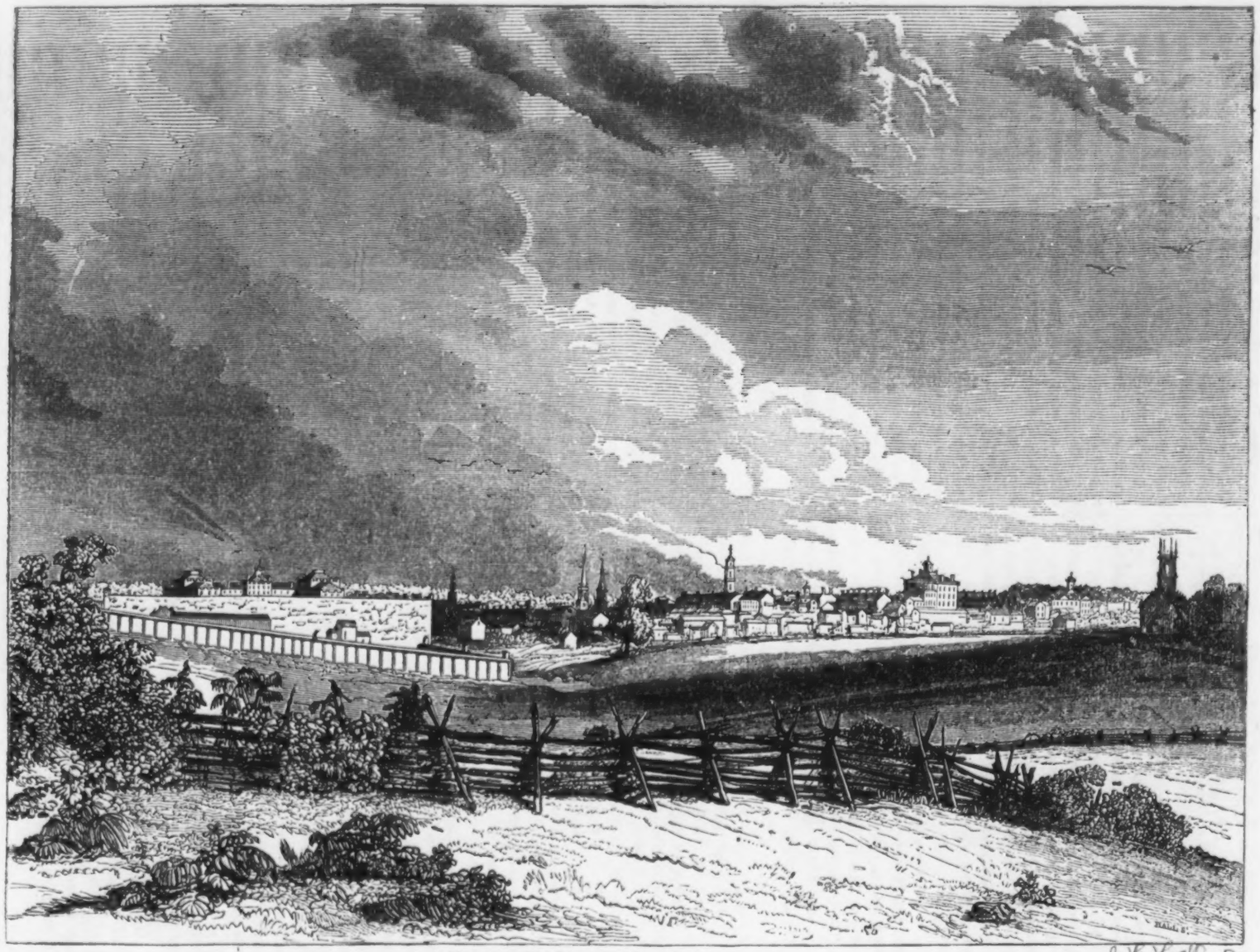
"The recent death of this illustrious patriot and statesman has given peculiar value to this fine print, which, whether as a painting, a likeness, or an engraving, is certainly one of the finest works of art which has yet been produced in this country. This portrait with those who are familiar with the features of the venerable Ex-President, will be most highly prized, as conveying as faithful and accurate an idea of his features, as it would be possible for the pencil to give. It was painted only two years since, when the venerable sage was in the full vigour of his green old age, and consequently represents him at a time of life which is replete with interest to the admirers of his character.

With respect to the engraving, it is but justice to state that we have but in rare instances seen a finer specimen of the art. It is a highly finished mezzotinto and has all the richness and softness of that style with the truth and accuracy of a line engraving. The spirit and expression of the original have been fully preserved and as a work of art it deserves the high commendation of being a credit to its condition in the United States. This beautiful and valuable portrait, which in London would be usually published at from twenty-five shillings sterling to two guineas, is sold in Washington at the very low price of two dollars. A circumstance which, however otherwise remarkable, gives us pleasure, since it puts it in the power of every one to possess themselves of an admirable likeness of this great American legislator and statesman."

Sleigh's New York Discussion on the Subject of Divine Revelation, is now publishing by Charles H. Jackson & Co., New York, in numbers of twenty-four pages, price twelve and a half cents each. The book will be embellished with a portrait of Dr. Sleigh and with four other engravings. Those who have had no opportunity of hearing Dr. Sleigh speak, can now form their own opinion of his merits as a controversialist.

The *Southern Literary Journal,* which is issued monthly at Charleston, S. C., is truly creditable to the South. In its pages may be found many contributions of great merit, from the pens of some of the most distinguished writers in our country. In fact, many of those gentlemen who contributed so essentially to the prosperity of the Southern Review, have selected the Literary Journal as the medium of their intercourse with the publick, and have come forward with true chivalrick feeling in its support. Added to this the accomplished editor, MR. WHITAKER is determined to spare no pains to render his magazine in every way worthy of publick patronage. We sincerely hope that the Southern Literary Journal will find a reception at the North equal to its deserts, and that our friends will by their patronage of it, strengthen the literary bond of union between the North and South.

Pelayo, or the Cavern of Covadonga, a romance. By ISABEL. New York: Harper & Brothers. The publication of a poem is such an uncommon event in the literary world, that it would be almost unpardonable for us not to mention it. The poem is founded upon history, and the scene is laid about the year 718.



AUBURN, Cayuga Co., N. Y.

J. H. Hall Sc.

AUBURN.

THE Frontispiece of our present number represents one of the most flourishing townships in the western part of New York.

AUBURN is situated in the old military tract, on the Owasco outlet, about two and a half miles north of the Owasco lake, and is on the great western turnpike, 169 miles west of Albany. It was first settled in 1793, by Col. John L. Hardenbergh—and was for many years known as "Hardenbergh's Corners."

The postoffice was first established here about the year 1800—the mails arriving only once a fortnight. In two or three years, this was changed to once a week—During the war, to once a day—and now, the mails constantly arriving at, and departing from the postoffice, are almost without number. In 1805, Dr. Crosset gave the village the name by which it has ever since been known. At that time, it consisted of but a few log dwellings, a store or so, a gristmill, &c., all situated near the bank of the creek, not far from the spot which is now occupied by the extensive flourishing establishment of Messrs. Leonard & Warden. In this year, the act was passed appointing a committee to decide as to the location of the county buildings, which at length decided in favour of Auburn. In 1807, the building of the courthouse was commenced—and the county courts were removed to this place from Aurora. Thus the village had become the *county town*—and, as a natural consequence, it was soon honoured with a newspaper. The "Western Federalist" was started by H. & J. Pace in 1808, and was continued by them till 1816. But it had a good effect all the time in giving the infant village a *name* abroad—and accordingly we find its condition constantly improving. The courthouse, clerk's office, and several frame houses had by this time been erected; and in 1811, we find the late unobtrusive settlement had increased to quite a goodly village. At this time, it was supposed to contain not far from 300 inhabitants; the courthouse was at this time the only publick building in the village, and even this was still in an unfinished state. Exertions were made to erect an Episcopal church, and during this year, the neat little edifice (destroyed by fire in 1832) was commenced: So also was commenced the old academy—a brick three-story building, which too, was destroyed by fire in 1816. Nor were these improvements confined to one class or to only one sect of the people—for in the same year, we find the few Presbyterians then in the place, meeting to form a society of that denomination.

The great epidemick, which in1813 raged so generally throughout the country, marked many a victim among the citizens of Auburn—mostly, however, of the intemperate class.

By an act of the legislature, the village of Auburn was incorporated on the 18th of April, 1815—at which time it contained about 1000 inhabitants. From this time its improvements became more rapid and uniform; the streets, which had formerly been nothing but mud and hills, were now, for the first time, sought to be improved; walks were put down on the principal streets; and in a short time, people, with good care, might pass from one end of the village to the other without running much risk of being lost in the mud—an attempt which had hitherto been proved to be somewhat hazardous. In this year, the first fire company was formed.

In 1816, after the relative advantages of the several villages of the western district, had been canvassed by a committee appointed by the state, for the purpose of deciding upon the location for a state prison for said district, the choice was decided in favour of Auburn. The prison was accordingly commenced—and has now long been admired as a model, both in Europe and in this country.

During the same year, the first Presbyterian Society laid the foundation of their meeting-house on North street; which house was dedicated on the 6th of March the following year. In June, the "Auburn Gazette," (afterward "Cayuga Republican,") was commenced by Skinner & Crosby—and in September, the "Advocate of the People" was published by H. C. Southwick.

At this time, the bank of Auburn was chartered—capital stock, $200,000. In 1818, their present banking-house was erected.

In April, 1817, the village contained 1506 inhabitants—148 dwelling-houses—20 stores, and 40 mechanick shops. In September, 1828, its inhabitants numbered 2047—showing an increase of 548 in seventeen months.

The Auburn Theological Seminary (the situation of which is now very flourishing) was established by the synod of Geneva in 1819, incorporated in 1820, and went into operation in 1821.

During the same year, the Methodist Episcopal Society was organized. Their house on Chapel street was soon after erected; this has since been sold to the Roman Catholicks. The stone chapel, belonging to, and now occupied by this society, on North street, was erected in 1833. In 1824, the "Free Press" was commenced by Richard Oliphant; which, after having been continued till 1833, by uniting with the Republican, gave rise to the Auburn Journal.

In 1825, the number of inhabitants was 2982; in 1833, 3368, and in 1836, it is probably not far from 6,500. In 1825, the Baptist Society was organized; and in 1829, they erected their house on South street, (since sold to the Universalists,) and in 1834, erected their house on Genesee street. In 1827, the "Gospel Messenger," an Episcopal publication,) was commenced by Rev. Dr. Rudd. In 1829, the Second Presbyterian Society was organized; and soon they laid the foundation of their house on South street also.

The Auburn Musical Association was formed in 1830—and we believe is at this time in a flourishing condition. In 1833, the Universalist Society was organized; and in 1834, the Catholicks fitted up their church on Chapel street. About nine years since, great and lasting improvements were commenced in the appearance of the streets. Hills were reduced—valleys raised—and all so nearly brought upon a level as to entirely alter the general *contour* of the village. In addition to this, after these improvements were completed, the principal streets passed through an almost universal operation of M'Adamization—which renders them at once agreeable promenades, at most times wearing the same appearance of neatness and cheerfulness. The new county jail

was erected in 1833 at an expense of $8.000. It is of limestone, 72 by 45 feet, three stories high—the prison portion being entirely fireproof. It contains 14 cells, besides workshops, &c., in the third story.

In this year, the Cayuga county bank was chartered—capital stock $250,000—and in 1834, erected their splendid banking-house. In 1833, the "Cayuga Democrat" was commenced by F. Prince—and was discontinued in March, 1835. The Young Men's Association was formed two years ago. It has nearly one hundred members—and its reading-room is well furnished with the best foreign and American periodical, literature, &c. Success attend it.

It will be utterly impossible for us in this article and at this time to detail as fully as we could wish all the sources of prosperity which are daily opening upon Auburn, and which bid fair to place her in the same rank with the most flourishing places in the interiour of the state. A correspondent remarks that "the Auburn and Oswego canal is going on vigorously, and will be completed either this autumn or early next spring. The capital of the company has been doubled; it is now $200,000. This work will give our village water-power to an almost unlimited extent; and in connexion with present advantages, will place us on an *equal* footing, at least in this respect, to any other place in the state.

The Auburn and Syracuse railroad is now under contract the whole distance, and most of it is rapidly progressing. Next year it will be ready for travel, and in connexion with the Syracuse, Utica, and Schenectady railroads, will place Auburn within six or eight hours travel of Albany, or about sixteen or eighteen of New York.

A charter has been granted for the Auburn and Ithaca railroad: this is to pass for about forty miles through one of the richest agricultural sections of the state, connecting at Ithaca with the Ithaca and Oswego, and with the New York and Erie railroad; thus opening to our citizens a direct and speedy communication with the coal-districts of Pennsylvania on the south, as well as with the still unexplored regions of the west.

The Auburn and Rochester railroad, the stock for which is $2,000,000, will open many advantages in that direction; thus placing Auburn in one of the most advantageous situations, (so far as rapid communication with other places is concerned,) not to be surpassed by any other town in the state. As to health, and general prosperity, it is unrivalled.

During the present year, the new act of incorporation has taken effect, greatly enlarging the limits of the village, as well as placing in the hands of the trustees more power than they possessed under the old charter. The trustees elected last spring have entered upon the duties of their station with a zeal in every respect honourable to the village—and are, at this time, engaged in prosecuting improvements, which will prove a lasting honour to the place. The streets (or those not already done) are being graded and McAdamized, supplied with lamps, &c., an efficient night-watch established, and steps taken to advance the health and beauty of Auburn; and consequently the value of property.

Riches cannot purchase mental endowments. Imitate a good man, but never counterfeit him.

NAVAL REMINISCENCE.

The capture of the U. S. frigate President, by a British squadron off Long Island, near the close of the last war, was marked by many interesting circumstances which have been communicated to us by an eye witness.

It is well known that the President sustained considerable injury by striking on the bar near Sandy Hook, on the night she put to sea, which greatly impeded her sailing. This incident, and the delay occasioned by it, rendered it very doubtful whether she would be able to elude the enemy's vigilance, who were known to have a force of three frigates and a 64 gun ship cruizing along the coast. As the day dawned, the apprehensions of Commodore Decatur were realized. The whole of the enemy's squadron was in sight, and at no great distance, and in a brief interval their clouds of canvass were seen raised to the breeze, in eager pursuit. The largest of the frigates, the Endymion, a ship of equal size and force with the President, took the lead in the chase, and it was very apparent that her superiour sailing would render all hope of escape from her futile. Not that there was any disinclination to try the issue of a brush with her single-handed; on the contrary, such was the confidence in our naval superiority, and in the hero who commanded, that every heart would have exulted at the thought of such an encounter, without a fear of its consequences. But Decatur saw that if he commenced an engagement with the Endymion, it would hardly be decided before the ships would arrive, and determine the result against him. The chase continued fresh and animated until after sunset, when the enemy's ship having arrived within gun-shot, began to pour in a well-directed fire. At this moment, Decatur conceived a plan, which, with his characteristick decision he determined to carry, if possible, into execution. It was to run the President alongside of the Endymion, carry her by boarding, escape by her superiour sailing, and leave his own crippled vessel a prey to the enemy.

The conception was worthy of the hero, and was hailed with three enthusiastick cheers by the crew, when communicated to them. Orders were promptly given to wear ship for the purpose, but the enemy took the alarm, and stood off, thus frustrating the intrepid manoeuvre.

No alternative was now left but to fight the Endymion at her own distance, and matters soon wore a terrifick aspect. A running fire commenced on both sides, which was fatal to many of the officers of the President. Mr. Babbitt, the first-lieutenant, was killed early in the action, and Lieutenant Hamilton was soon after cut in two by an 18 pound shot. This amiable officer shook hands and took leave of a friend, as he departed to his station, and in a few minutes, when that friend was hastening to the quarter-deck to make a report to the commodore, he met his faithful servant, who exclaimed in a tone of anguish: "Oh, sir, poor Mr. Hamilton is just killed."

Meanwhile, the contest which had raged fiercely for more than an hour, began to abate, on the part of the enemy, and it was very evident that they were unable to continue it much longer. As their fire ceased, Lieut. Howell observed to a midshipman, who was standing by his side, "Well, we have flogged

that fellow after all; he can fight no longer." He had scarcely uttered these words, when a gun flashed, and he exclaimed, "No, he is firing yet." The midshipman moved to look as he spoke, but hearing a groan at the moment, he turned round, and the gallant Howell was lying on the deck in the convulsions of death. That very flash was but the precursor of the fatal shot which struck him while he was speaking. The midshipman found that he had himself narrowly escaped the same shot, it having carried away a part of the hilt of his own dirk, which was hanging by his side.

By this time the Pomong and Tenedos frigates having come up, had taken their position to pour in upon the President their murderous broadsides, and further resistance to such unequal odds seemed madness. Painful as the necessity was, it now seemed imperious, and Decatur gave order for the flag to be struck.

Though it was in the latter part of January, the sun rose the next morning with a mild and vivifying radiance. The hostile attitude of the parties having been changed by the result into the relation of victors and vanquished, it now only remained to the victors to make the necessary preparations to transport their prize to Bermuda.

On Commodore Decatur, however, and the survivors was devolved the sad duty of consigning to their graves, the remains of those who had fallen in the bloody contest. The bodies of Lieutenants Babbitt, Hamilton and Howell, wrapped in tarry sheets, were borne to the ship's side, and prepared to be consigned to the depths below. Around stood the silent group, attended by a detachment of British marines, who were deputed to pay them the closing honours of war. The Episcopal burial service was read in an impressive manner by Decatur, and as he pronounced the words, "We commit these bodies to the deep," the marines fired their funeral knell, and they were simultaneously launched into the ocean.

> One sudden plunge—the scene was o'er;
> The sea rolled on as it rolled before.

It is a remarkable circumstance, that when the prize-crew was sent on board the President, from the squadron, inquiry was immediately made by a British officer, if Lieutenant Babbitt was on board, and well. When told of his death, he was greatly affected, and observed that he had been a few months before a prisoner of war in the United States, and stationed in the village where the family resided with whom Mr. Babbitt expected to be allied by marriage, and that he had given them a pledge on his departure, that if ever the chances of war should place Mr. B. within his reach, he would do all in his power to alleviate the misery of such servitude.

Notwithstanding the favourable opportunity afforded by the weather to repair the President, and put her in a condition to reach Bermuda in safety, not a shot-hole was stopped up the next day, and she remained as she was when the last gun was fired. That night the spirit of the storm was visible on the face of the waters, and ere midnight, the winds and waves seemed to vie with each other in an effort to complete the work of destruction. A tempest of the most appalling description sprang up, to which the terrours of the battle were as nothing. The ship rolled and plunged, and every succeeding plunge was supposed to be the last. The idea that such a shattered vessel, pierced by a hundred balls, and leaking dreadfully, could survive the fury of the storm, seemed to all incredible. The American officers were placed in the ward-room, where they remained the whole night in that state of exciting and fearful suspense which the danger of their situation was likely to produce. The word passed repeatedly from one to another, that she was gone, and all immediately prepared to meet their impending fate as soon as possible. But Providence had ordained otherwise; and with the return of the morning came new hope. The violence of the gale did not abate, however, until evening, and when it subsided, not one of the other ships was any where to be seen. A plan was therefore formed by the prisoners to rise upon the prize-crew and recapture the frigate, which was defeated only by the premature disclosure of it by a drunken marine. Being ordered below for some insolence, he muttered something that alarmed the British officer, who exercised such vigilance afterward that it was found impracticable to carry the scheme into execution with any prospect of success.

N. Y. Jour. of Com.

Wild-Orange Groves.—Nothing can be more gladdening to the traveller, when passing through the uninhabited woods of East Florida, than the wild-orange groves which he sometimes meets with. As I approached them, the rich perfume of the blossoms, the golden hue of the fruits, that hung on every twig, and lay scattered on the ground, and the deep green of the glossy leaves, never failed to produce the most pleasing effect on my mind. Not a branch has suffered from the pruning knife, and the graceful form of the trees retains the elegance it received from nature. Raising their tops into the open air, they allow the uppermost blossoms and fruits to receive the unbroken rays of the sun, which one might be tempted to think are conveyed from flower to flower, and from fruit to fruit, so rich and balmy are all. The pulp of these fruits quenches your thirst at once, and the very air you breathe in such a place refreshes and reinvigorates you. I have passed through groves of these orange-trees full a mile in extent. Their occurrence is a sure indication of good land, which in the southeastern portion of that country is rather scarce. The Seminole Indians and poorer squatters feed their horses on oranges, which these animals seem to eat with much relish. The immediate vicinity of a wild-orange grove is of some importance to the planters, who have the fruits collected and squeezed in a horse-mill. The juice is barrelled and sent to different markets, being in request as an ingredient in cooling drinks. The straight young shoots are cut and shipped in bundles, to be used as walking sticks.

> They err who deem love's brightest hour
> In blooming youth is known;
> Its purest, tenderest, holiest power
> In latter life is shown:
> When passions chastened and subdued,
> To riper years are given,
> And earth and earthly things are viewed
> In light that breaks from Heaven.

THE SQUATTERS OF THE MISSISSIPPI.

Although every European traveller who has glided down the Mississippi, at the rate of ten miles an hour, has told his tale of the squatters, yet none has given any other account of them than that they are "a sallow, sickly-looking sort of miserable beings," living in swamps, and subsisting on pig-nuts, Indian corn, and bear's-flesh. It is obvious, however, that none but a person acquainted with their history, manners and condition, can give any real information respecting them.

The individuals who become squatters, choose that sort of life of their own free will. They mostly remove from other parts of the United States, after finding that land has become too high in price; and they are persons who, having a family of strong and hardy children, are anxious to enable them to provide for themselves. They have heard from good authorities, that the country extending along the great streams of the West, is, of all parts of the Union the richest, in its soil, the growth of its timber, and the abundance of its game; that, besides, the Mississippi is the great road to and from all the markets in the world; and that every vessel borne by its waters, affords to settlers some chance of selling their commodities, or of exchanging them for others. To these recommendations is added another, of even greater weight with persons of the above denomination, namely, the prospect of being able to settle on land, and perhaps to hold it for a number of years, without purchase, rent, or tax, of any kind. How many thousands of individuals in all parts of the globe would gladly try their fortune with such prospects, I leave to you, reader, to determine.

As I am not disposed too highly to colour the picture which I am about to submit to your inspection, instead of pitching on individuals who have removed from our Eastern boundaries, and of whom certainly there are a good number, I shall introduce to you the members of a family from Virginia, first giving you an idea of their condition in that country, previous to their migration to the West. The land which they and their ancestors have possessed for a hundred years, having been constantly forced to produce crops of one kind or other, is now completely worn out. It exhibits only a superficial layer of red clay, cut up by deep ravines, through which much of the soil has been conveyed to some more fortunate neighbour, residing in a yet rich and beautiful valley. The strenuous efforts to render it productive have failed. They dispose of every thing too cumbrous or expensive for them to remove, retaining only a few horses, a servant or two, and such implements of husbandry and other articles as may be necessary on their journey, or useful when they arrive at the spot of their choice.

I think I see them at this moment harnessing their horses, and attaching them to their wagons, which are already filled with bedding, provisions, and the younger children; while on their outsides are fastened spinning-wheels and looms; and a bucket filled with tar and tallow, swings between the hind wheels. Several axes are secured to the bolster, and the feeding trough of the horses contains pots, kettles, and pans. The servant now become a driver, rides the near saddled horse, the wife is mounted on another, the worthy husband shoulders his gun, and his sons, clad in plain substantial homespun, drive the cattle ahead, and lead the procession, followed by the hounds and other dogs. Their day's journey is short and not agreeable:—the cattle, stubborn or wild, frequently leave the road for the woods, giving the travellers much trouble; the harness of the horses here and there gives away, and needs immediate repair; a basket, which has accidentally dropped, must be gone after, for nothing that they have can be spared; the roads are bad, and now and then all hands are called to push on the wagon, or prevent it from upsetting. Yet, by sunset, they have proceeded perhaps twenty miles. Rather fatigued, all assemble round the fire which has been lighted, supper is prepared, and a camp being erected, there they pass the night.

Days and weeks, nay, months, of unremitting toil pass, before they gain the end of their journey. They have crossed both the Carolinas, Georgia, and Alabama. They have been travelling from the beginning of May, to that of September, and with heavy hearts they traverse the state of Mississippi. But now, arrived on the banks of the broad stream, they gaze in amazement on the dark deep woods around them. Boats of various kinds they see gliding downward with the current, while others slowly ascend against it. A few inquiries are made at the nearest dwelling, and assisted by the inhabitants with their boats and canoes, they at once cross the Mississippi, and select their place of habitation.

The exhalations arising from the swamps and morasses around them, have a powerful effect on these new settlers, but all are intent on preparing for the winter. A small patch of ground is cleared by the axe and the fire, a temporary cabin is erected, to each of the cattle is attached a jingling-bell before it is let loose into the neighbouring canebrake, and the horses remain about the house, where they find sufficient food at that season. The first trading-boat that stops at their landing, enables them to provide themselves with some flour, fish-hooks, and ammunition, as well as other commodities. The looms are mounted, the spinning-wheels soon furnish some yarn, and in a few weeks the family throw off their ragged clothes, and array themselves in suits adapted to the climate. The father and sons, meanwhile, have sown turnips and other vegetables; and from some Kentucky flat-boat, a supply of live poultry has been procured.

October tinges the leaves of the forest, the morning dews are heavy, the days hot, the nights chill, and the unacclimated family in a few days are at-

tacked with ague. The lingering disease almost prostrates their whole faculties, and one seeing them at such a period might well call them sallow and sickly. Fortunately the unhealthy season soon passes over, and the hoar-frosts make their appearance. Gradually each individual recovers strength. The largest ash trees are felled; their trunks are cut, split, and corded in front of the building; a large fire is lighted under night on the edge of the water, and soon a steamer calls to purchase the wood, and thus add to their comforts during the winter.

This first-fruit of their industry imparts new courage to them; their exertions multiply, and when spring returns, the place has a cheerful look. Venison, bear's-flesh, wild-turkeys, ducks, and geese, with now and then some fish, have served to keep up their strength, and now their enlarged field is planted with corn, potatoes, and pumpions. Their stock of cattle, too, has augmented; the steamer, which now stops there as if by preference, buys a calf or a pig, together with the whole of their wood. Their store of provisions is renewed, and brighter rays of hope enliven their spirits.

Who is he of the settlers on the Mississippi that cannot realize some profit? Truly none who is industrious. When the autumnal months return, all are better prepared to encounter the ague, which then prevails. Substantial food, suitable clothing, and abundant fringe, repel its attacks; and before another twelvemonth has elapsed, the family is naturalized.

The sons by this time have discovered a swamp covered with excellent timber, and as they have seen many great rafts of saw-logs, bound for the mills of New Orleans, floating past their dwelling, they resolve to try the success of a little enterprise. Their industry and prudence have already enhanced their credit. A few cross-saws are purchased, and some broad-wheeled "carry-logs" are made by themselves. Log after log is hauled to the bank of the river, and in a short time their first raft is made on the shore and loaded with cord-wood. When the next freshet sets it afloat, it is secured by long grape-vines or cables, until the proper time being arrived, the husband and sons embark on it, and float down the mighty stream.

After encountering many difficulties, they arrive in safety at New Orleans where they dispose of their stock, the money obtained for which, may be said to be all profit; supply themselves with such articles as may add to their convenience or comfort, and with light hearts, procure a passage on the upper-deck of a steamer, at a very cheap rate, on account of the benefit of their labour in taking in wood or otherwise.

And now the vessel approaches their home. See the joyous mother and daughters as they stand on the bank! A store of vegetables lies around them, a large tub of fresh milk is at their feet, and in their hands are plates filled with rolls of butter. As the steamer stops, three broad straw-hats are waved from its upper-deck; and soon, husband and wife, brothers and sisters, are in each other's embrace. The boat carries off the provisions, for which value has been left, and as the captain issues his orders for putting on the steam, the happy family enter their humble dwelling. The husband gives his bag of dollars to the wife, while the sons present some token of affection to their sisters. Surely, at such a moment, the squatters are richly repaid for all their labours.

Every successive year has increased their savings. They now possess a large stock of horses, cows, and hogs, with abundance of provisions, and domestick comforts of every kind. The daughters have been married to the sons of neighbouring squatters, and have gained sisters to themselves by the marriage of their brothers. The government secures to the family the lands, on which, twenty years before, they settled in poverty and sickness. Larger buildings are erected on piles, secure from the inundations; where a single cabin once stood, a neat little village is now to be seen; warehouses, stores and workshops, increase the importance of the place. The squatters live respected, and in due time die regretted, by all who knew them.

Thus are the vast frontiers of our country peopled, and thus does cultivation, year after year, extend over the western wilds. Time will no doubt be, when the great valley of the Mississippi, still covered with primeval forests, interspersed with swamps, will smile with cornfields and orchards, while crowded cities will rise at intervals along its banks, and enlightened nations will rejoice in the bounties of Providence.

Audubon.

THE CANARY BIRD.

The Canary-bird is remarkable for its tractability and intelligence, as an instance of which the following anecdote may be given:—A bird-catcher in Prussia, who had rendered himself famous for educating and calling forth the talents of the feathered tribe, had a Canary bird, which was introduced by the owner to a large party at Cleves, to amuse them with his wonderful feats. The Canary being produced, the owner harangued him in the following manner, placing him upon his forefinger:—"Bijou, (jewel,) you are now in the presence of persons of great sagacity and honour; take heed, therefore, that you do not deceive the expectations they have conceived of you from the world's report. You have got laurels; beware of their withering; in a word, deport yourself like the bijou of Canary birds, as you certainly are." All this time the bird seemed to listen, and indeed placed himself in the true attitude of attention. He sloped his head to the ear of the man, and distinctly nodded twice, when his master had left off speaking; and if ever nods were intelligible and promissory, these were of that nature. "That's good," said the master, pulling off his hat to the bird. "Now let us see if you are a Canary of honour? Give us a tune." The Canary sang. "Pshaw! that's too harsh; 'tis the note of a raven with a hoarseness upon him—something pathetick." The Canary whistled as if his little throat was changed to a lute. "Faster," says the man; "slower—very well. What the plague is this little foot about, and this little head? No wonder you are out, Mr. Bijou, when you forget your time. That's a jewel; Bravo! bravo! my little man." All that he was ordered, or reminded of, did he to admiration. His head and foot beat time, humoured the variations both of tone and movement; and the sound was a just echo to the sense, according to the strictest laws of poetical, and (as ought to be) of musical compo-

sition. "Bravo! bravo!" re-echoed from all parts of the room. The musicians declared the Canary was a greater master of musick than any of their band. "And do you not show your sense of this civility, sir?" cried the bird-catcher with an angry air. The Canary bowed most respectfully, to the great delight of the company. His next achievement was going through the martial exercises with a straw gun; after which, "My poor Bijou," said the owner, "thou hast had hard work, and must be a little weary: a few performances more, and thou shalt repose. Show the ladies how to make a courtesy." The bird here crossed his taper legs, and sunk and rose with an easy grace that would have put half our subscription-assembly *belles* to the blush. "That's my fine bird! and now a bow, head and foot corresponding." Here the striplings for ten miles round New York might have blushed also. "Let us finish with a hornpipe, my brave little fellow; that's it, keep it up, keep it up." The activity, glee, spirit, and accuracy, with which this last order was obeyed, wound up the applause (in which all the musicians joined, as well with their instruments as their clappings) to the highest pitch of admiration. Bijou himself seemed to feel the sacred thirst of fame, and shook his little plumes, and carolled an *Io pæan*, that sounded like the conscious notes of victory. "Thou hast done all my biddings bravely," said the master, caressing his feathered servant; "now then take a nap, while I take thy place." Hereupon the Canary went into a counterfeit slumber, so like the effect of Morpheus, first shutting one eye, then the other, then nodding, then dropping so much on one side that the hands of several of the company were stretched out to save him from falling; and just as their hands approached his feathers, suddenly recovering, and dropping as much on the other. At length, sleep seemed to fix him in a steady posture; whereupon the owner took him from his finger, and laid him flat on the table, where the man assured us he would remain in a good sound sleep, while he himself had the honour to do his best to fill up the interval. Accordingly, after drinking a glass of wine, (in the progress of which he was interrupted by the Canary bird springing up suddenly to assert his right to a share, really putting his little bill into the glass, and then laying himself down to sleep again,) the owner called him a saucy fellow, and began to show off his own independent powers of entertainment, when a huge black cat, who had long been on the watch, sprang, unobserved, from a corner, upon the table, seized the poor Canary in its mouth, and rushed out of the window in spite of opposition. And though the room was deserted in an instant, it was a vain pursuit; the life of the poor bird was gone; and its mangled body was brought in by the unfortunate owner, under such dismay, and accompanied by such looks and language, as would have awakened pity in a misanthrope.

Disappointments in love, in those of deep and imaginative feeling, are like the tornadoes that sweep over southern regions. The heavens may again assume their serenity, but the wide spread desolation remains; and even in after years as the traces of the whirlwind may be discovered amid the exuberant growth and profusion of flowers.

BIOGRAPHY.

BENJAMIN WEST.—Born 1738—Died 1820.

Benjamin West, one of the most distinguished artistis America has yet produced, was born near Springfield, Penn., Oct. 10th, 1738. His first essay in the arts was made when he was seven years old; for being left in charge of a sleeping child, he attempted to represent its features on paper, with pen and ink. His success was such as to call forth the admiration of his parents. Soon after this he procured from some Indians the red and yellow earths used by them for decorating their persons; and these with blue from his mother's pad of indigo, he was enabled to give the colours of the objects pictured.

The first money received by young West for his labours as an artist, was from Mr. Wayne, for drawings on poplar boards; and Dr. Morris made him a present of a "few dollars to buy paints with." His first effort at portrait-painting was at Lancaster. A gunsmith, named Henry, employed him to paint the death of Socrates, and loaned him the book to make him acquainted with the event. A workman stood as a model for one of the figures. This led to the study of the human form, and showed the youth the importance of anatomy as connected with the arts of design.

In 1756, West's mother died; and in that year our painter left his birthplace, and came to Philadelphia. Here he pursued his professional avocations as a portrait-painter for some time and with marked success. After a while he visited New York, where he remained eleven months, constantly occupied; at this time a favourable opportunity occurring to visit Europe, West embarked for Italy, being then twenty-one years of age. At that time, the sight of an American artist, and that one too a quaker, was by no means common in Italy, and West was every where received with the attention to which his talents entitled him. At Rome, he met with the distinguished artist, Mengs, who treated him with great kindness, and even advised him as to the proper course to be pursued for his improvement. "See," said he, "and examine every thing deserving of your attention here, and after making a few drawings of about half a dozen of the best statues, go to Florence, and observe what has been done for art in the collections there. Then proceed to Bologna, and study the works of the Caracci; afterward visit Parma, and examine attentively the pictures of Corregio; and then go to Venice, and view the productions of Tintoretto, Titian, and Paul Veronese. When you have made this tour, come back to Rome, and paint an historical composition to be exhibited to the Roman publick."

After a severe illness of eleven months, West proceeded on the tour recommended by Mengs, and returning to Rome, painted his pictures of Cimon and Iphigenia, and Angelica and Medona. These procured for him academical honours. He now determined to visit England, and on the 20th of June, 1763, we find him at London. The commencement of his career in that city, is thus stated by Mr. Leslie: "When Mr. West arrived in London, the general opinion was so unfavourable to modern art, that it was scarcely thought possible for an artist to paint an historical or fancy picture worthy to hang up be-

[Benjamin West.]

side the old masters. Hogarth had produced his matchless pictures in vain. The connoisseur who would have ventured to place the inimitable scenes of the "Marriage a la mode," on his walls, (I mean the pictures, the prints were in great request,) would have hazarded most fearfully his reputation for taste. This prejudice against living genius continued until the arrival of West, and it must have required some courage in a young man at that time to make his appearance in England, in the character of an historical painter. One of the first pictures, if not the very first he produced, was from the story of Pylades and Orestes, (there is an admirable copy of it in this country, painted by Mr. Sully.) This picture attracted so much attention, that Mr. West's servant was employed from morning till night in opening the door to visiters, and the man received a considerable sum of money by showing it, while the master was obliged to content himself with empty praise. All admired, but no one dared to buy it. It was curious enough, however, that the reputation of this picture raised him into high favour as a portrait-painter.

West's talents thus becoming known, soon made him acquainted, among others, with the archbishop of York, for whom he painted his Agrippina. His success in the management of this subject, procured his presentation to George III. "The king received West with easy frankness, assisted him to place the Agrippina in a favourable light, removed the attendants, and brought in the queen, to whom he presented our quaker. He related to her majesty the history of the picture, and bade her notice the simplicity of the design and the beauty of the colouring. 'There is another noble Roman subject,' observed his majesty, 'the departure of Regulus from Rome—would it not make a fine picture?' 'It is a magnificent subject,' said the painter. 'Then,' replied the king, 'you shall paint it for me.' He turned with a smile to the queen, and said, 'The archbishop made one of his sons read Tacitus to Mr. West, but I will read Livy to him myself—that part where he describes the departure of Regulus.' So saying, he read the passage very gracefully, and then repeated his command that the picture should be painted."

The Regulus was successful, and was followed by the "Death of Wolfe," in which he substituted the costume of the day for the classick dress. Mr. West now suggested to the king a series of pictures on the progress of revealed religion, which were ordered. He divided his subject "into four dispensations; the Antediluvian, the Patriarchal, the Mosaical, and the Prophetical. They contained in all thirty-six subjects, eighteen of which belonged to the Old Testament, the rest to the New. They were all sketched, and twenty-eight were executed, for which West received in all twenty-one thousand seven hundred and five pounds. A work so varied, so extensive, and so noble in its nature, was never before undertaken by any painter."

Another extensive series of historical pictures painted by West, was drawn from the reign of Edward III.; they were—"1. Edward III. embracing the black prince, after the battle of Cressy. 2. The Installation and order of the Garter. 3. The black prince receiving the king of France and his son prisoners, at Poictiers. 4. St. George vanquishing the Dragon. 5. Queen Phillipa defeating David of Scotland, in the battle of Neville's cross. 6. Queen Phillipa interceding with Edward for the Burgesses of Calais. 7. King Edward forcing the passage of the Somme. 8. King Edward crowning Sir

Eustace de Ribaumont at Calais. These works are very large. They were the fruit of long study and much labour, and with the exception of the death of Wolfe and the battle of la Hogue, they were the best of all the numerous works of this artist."

On the death of Reynolds, West was chosen President of the Royal Academy, and delivered his inaugural address in March, 1792. In 1802, West was dismissed from employment by the successor of George III. "This extraordinary proceeding," says Galt, "rendered the studies of the best part of the artist's life useless, and deprived him of that honourable provision, the fruit of his talents and industry, on which he had counted for the repose of his declining years. For some time it affected him deeply, and he was at a loss what steps to take." But he, however, still continued his professional pursuits, and painted the "healing in the temple," a copy of which he presented to the Pennsylvania hospital; this was followed by the "descent of the Holy Ghost and Christ at the Jordan," ten feet by fourteen; the "Crucifixion," sixteen feet by twenty-eight; the "Ascension," twelve feet by eighteen; and the "Inspiration of St. Peter," of nearly the same size. Nor must we omit to mention his "Christ rejected," or his "Death on the pale horse," which is exhibiting at the present time in the United States. West's health now began to decline. "Domestick sorrow mingled with professional disappointment. Elizabeth Shewell—for more than fifty years his kind and tender companion—died on the 6th of December, 1817, and West, seventy-nine years old, felt that he was soon to follow. His wife and he had loved each other some sixty years—had seen their children's children—and the world had no compensation to offer. He began to sink, and though still to be found at his esel, his hand had lost its early alacrity. It was evident that all this was to cease soon; that he was suffering a slow, and a general and easy decay. The venerable old man sat in his study among his favourite pictures, a breathing image of piety and contentment, awaiting calmly the hour of his dissolution. Without any fixed complaint, his mental faculties unimpaired, his cheerfulness uneclipsed, and with looks serene and benevolent, he expired 11th March, 1820, in the eighty-second year of his age. He was buried beside Reynolds, Opie, and Barry, in St. Paul's cathedral. The pall was borne by noblemen, ambassadors, and academicians; His two sons and grandson were chief mourners; and sixty coaches brought up the splendid procession."

In speaking of West's character, the present president of the royal academy, Sir Martin Shee, re-

["Moses."—B. West.]

marks. "Well grounded in the elementary principles of his profession, he was as conversant with the theory, as he was dexterous in the practice of his art. It is no exaggeration to say of him, that in the exercise of those powers of the pencil, to the attainment of which his ambition more particularly directed him, he was unrivalled in his day. Such, indeed, was the facility of his hand, and with so much certainty did he proceed in his operations, that he rarely failed to achieve whatever he proposed to accomplish, and within the time which he had allotted for its performance.

"Indefatigible application and irrepressible ardour in his pursuit, succeeded in obtaining for him that general knowledge of his subject, which seldom fails to reward the toils of resolute and well-directed study. No artist of his time, perhaps, was better acquainted with the powers and the expedients, the exigences and the resources of his art. No man could more sagaciously estimate the qualities of a fine picture, or more skilfully analyze the merits combined in its production.

"The ambition of West directed him to the highest department of his art. In *his* hands the pencil was always employed for the noblest purposes—on subjects the moral interest of which outweighs their mechanical execution. He delighted to commemorate heroick deeds, to illustrate the annals of sacred history, and perpetuate the triumphs of patriotism and publick virtue.

"The degree of success with which the honourable exertions of West were attended, may, I conceive, be fairly determined by this test; let the most prejudiced of those who are inclined to question his claim to the rank of a great artist examine the series of prints engraved from his works. I I would, in particular, entreat them to view with some attention, the death of General Wolfe—the battles of la Hogue and the Boyne—the return of Regulus to Carthage—Agrippina bearing the ashes of Germanicus—the young Hannibal swearing eternal enmity to the Romans—the death of Epaminondas—the death of Chevalier Bayard—Pyrrhus, when a boy, brought to Glaucus, king of Illyria, for protection—and Penn's treaty with the Indians; not to mention many others, perhaps equally deserving of enumeration. Let these well-known examples of his ability be candidly considered, and where is the artist, whose mind is enlarged beyond the narrow sphere of his own peculiar practice; where is the connoisseur, whose taste has not been formed by a catalogue raisonnè, or in the atmosphere of an auction-room; who will hesitate to acknowledge that the author of such noble compositions may justly claim a higher station in his professsion than has been hitherto assigned to him, and well merits to be considered, in his peculiar department, the most distinguished artist of the age in which he lived?"

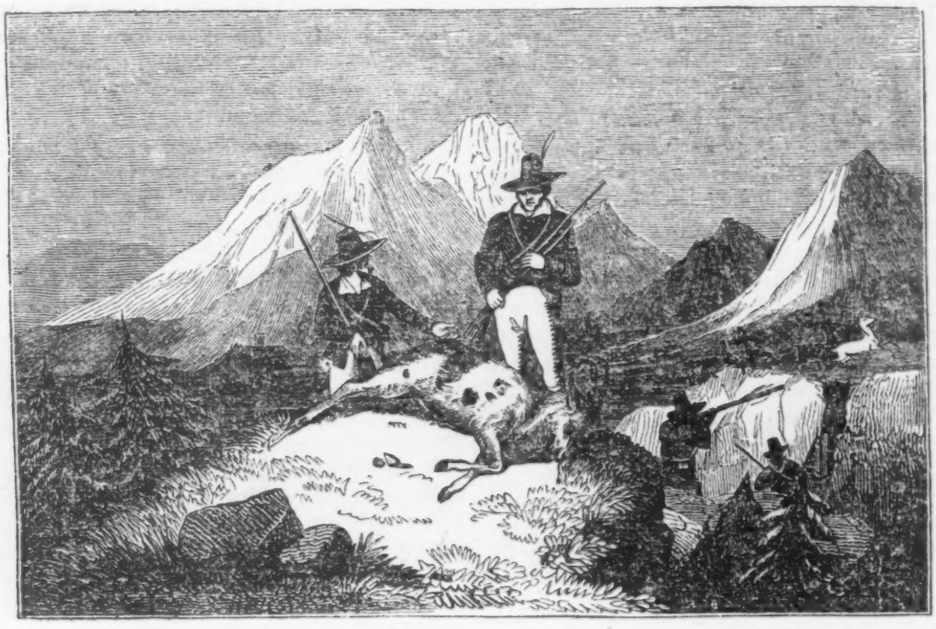
For many anecdotes, and for further information in regard to Benjamin West, we refer our readers to Dunlap's valuable "*History of the Rise and Progress of the Arts of Design in the United States*," a work which has been used freely in compiling this brief sketch, and which contains more information in regard to American artists, and the history of their interesting efforts in the pursuit of the art to which they have devoted themselves, than can be found in any other book.

INDIAN MANNERS.

The Indian men, when *young*, are hunters and warriours; when *old*, counsellors; for all their government is by counsel of the sages. There is no force, there are no prisons, no officers to compel obedience, or inflict punishment. Hence, they generally study oratory, the best speaker having the most influence. The Indian women till the ground, dress the food, nurse and bring up the children, and preserve and hand down to posterity the memory of publick transactions. These employments of men and women are accounted natural and honourable. Having few artificial wants, they have abundance of time and leisure for improvement by conversation. Our laborious manner of life, compared with theirs, they deem slavish and base; and the learning on which we value ourselves, they regard as frivolous and useless. An instance of this occurred at the treaty of Lancaster in Pennsylvania, A. D. 1744, between the government of Virginia and the *Six Nations*. After the principal business was settled, the commissioners from Virginia acquainted the Indians by a speech, that there was, at Williamsburgh, a college, with a fund for educating Indian youth; and that if the Six Nations would send down half a dozen of their young lads to that college, the government would take care that they should be well provided for, and instructed in all the learning of the white people. It is one of the Indian rules of politeness not to answer a publick proposition the same day that it is made; they think that it would be treating it as a light matter, and that they show it respect by taking time to consider it, as of a matter that is important. They therefore deferred their answer till the day following, when their speaker began by expressing their deep sense of the kindness of the Virginia government in making them that offer; "for we know," says he, "that you highly esteem the kind of learning taught in those colleges, and that the maintenance of our young men while with you would be very expensive to you. We are convinced, therefore, that you mean to do us good by your proposal, and we thank you heartily. But you, who are wise, must know that different nations have different conceptions of things; and you will therefore not take it amiss if our ideas of this kind of education happen not to be the same with yours. We have had some experience of it; several of our young people were formerly brought up at the colleges of the northern provinces—they were instructed in all your sciences; but when they came back to us, they were bad runners—ignorant of every means of living in the woods—unable to bear either cold or hunger—knew neither how to build a cabin, take a deer, or kill an enemy—spoke our language imperfectly, and were therefore neither fit for hunters, warriours, nor counsellors; they were, in short, *good for nothing*. We are, however, not the less obliged by your kind offer, though we decline accepting it; and, to show our grateful sense of it, if the gentlemen of Virginia will send us a dozen of their sons, we will take great care of their education, instruct them in all we know, and *make* MEN *of them*."

Having frequent occasions to hold publick councils, they have acquired great order and decency in conducting them. The old men sit in the foremost ranks, the warriours in the next, and the women and children in the hindmost. The business of the

women is to take exact notice of what passes, imprint it in their memories, and communicate it to their children. They are the records of the publick council, and they preserve traditions of the stipulations in treaties one hundred years back; which, when we compare them with our writings, we always find exact. He that would speak, rises, the rest observe a profound silence. When he has finished and sits down, they leave him five or six minutes to recollect; that if he has omitted any thing he intended to say, or has any thing to add, he may rise again and deliver it. To interrupt another, even in common conversation, is reckoned highly indecent. How different this is from the conduct of one of our legislative assemblies, where scarcely a day passes without some confusion, that makes the speaker hoarse in calling to order; and how different from the mode of conversation in many polite circles, where, if you do not deliver your sentence with great rapidity, you are cut off in the middle of it by the impatient loquacity of those with whom you converse.



[Chamois Hunters.]

[For the Family Magazine.]

THE CHAMOIS HUNTERS.

WHOEVER has crossed the noble road made by Napoleon over the Simplon, must doubtless remember the appetite with which he seated himself at the inn in the little village called Sempione, near the summit of the mountain, to enjoy, perhaps for the first time in his life, a piece of Chamois.

The pursuit of these animals is by no means unattended with danger; they are followed by the hunters amid rocks, and ice, and snow; these hardy mountaineers pursue their game, having only bread and water for food, and a rock for their pillow at night. They leave their homes before dawn, in order to arrive at the first break of day at those spots where the chamois feeds. Arrived here, the hunter looks around with his spyglass to see if he can discover any game. If a chamois is seen, the hunter approaches silently; as soon as he can distinguish the horns of the animal, he considers himself within gunshot, and fires his rifle. If the chamois is killed, the hunter runs to it, cuts the ham-strings, and if it be young, carries it home to his family. If, however, he is a long way from home, he merely takes from the animal the skin, which, as well as the horns and feet, are very valuable. But if the vigilant eye of the chamois perceives the hunter, as often happens, it flies with a rapid step over glaciers and rocky precipices. Now begin the fatigues of the hunter, especially, if instead of one chamois, he has discovered a herd of them. When his labours are suspended by the approach of night, he sets himself down at the foot of a rock; there, without fire, and without a light, he takes from his haversack a morsel of cheese and bread, which is frequently so hard that it must be broken with the hatchet he carries to cut steps in the ice. His repast finished, he lies himself down to sleep. The next day he pursues the same course, encounters the same hardships, exhibits the same contempt of danger and death, until he is fortunate enough to wound the nimble animal. These hunters often remain several days in these dreadful deserts, while their wives and families are in the greatest state of anxiety, being afraid even to sleep, lest the dead hunter should appear to them; for it is believed in that country, that the hunter, after death, appears to his nearest friends and tells where his body lies, that it may be buried.

The passion for the chamois hunt is so great, that a young hunter who had been married for only six months to a beautiful woman, remarked: "My grandfather and father died in the chase, and I am so certain of following their example, that I call this dress my shroud, feeling confident that I shall have no other; and yet the most brilliant fortune would not tempt me to renounce the chase." Six months afterward his foot slipped when he was on the edge of a precipice, he fell, and perished. The following anecdote also proves the dangers and accidents of the pursuit of the chamois: A hunter named Gas-

pard St. Veri, while pursuing the chamois with two of his friends, fell into an abyss formed by the melting of the ice. His companions gave him up as lost. But anxious to do all for his safety, they ran to the nearest cottage, which was several miles distant, to procure ropes. Finding none, however, they cut an old counterpane into strips, and ran to the gulf into which their comrade had fallen, and whose downward course had been arrested at the depth of thirty feet by the ice; half of his body was immersed in water: chilled with cold, he had resigned himself to God, in expectation of a lingering death. His comrades, however, called to him and he answered; the counterpane was lowered to the bottom, he tied it to himself and it was drawn up: just as he had reached the edge of the precipice, and was safe, a strip broke, and the unfortunate man fell again into the gulf, and broke his arm. His comrades, however, encouraged him, again tied the bands together and twisted them to render them more strong. Gaspard now tied the end round his body, was again drawn up, and miraculously saved.

The small number of these hunters who live to an advanced age, carry the marks of their profession in their faces; they have a wild and haggard look. It is doubtless this bad expression of features which has led the superstitious peasants to believe them to be sorcerers, and that the devil finally throws them down the precipices.

USEFUL ARTS.

ASSAYING.

Assaying is a species of chymical analysis, to ascertain the quantity of gold or silver in a metallick alloy. In its more extended meaning, and in the sense in which we shall adopt it in the following article, it is used for the determination of the quantity of metal in connexion with any other mineral employed for practical purposes. The assaying of ores may be performed either by what is termed the dry or moist process; the first is the most ancient, and, in many respects, the most advantageous, and, as such, still continues to be generally used.

Assays are made either in crucibles with the blast of the bellows, or in tests under a muffle. The assay weights are usually imaginary: sometimes an ounce represents a hundred weight on the large scale, and is subdivided into the same number of parts as that hundred weight is in the great; so that the contents of the ore obtained by the assay shall accurately determine, by such relative proportion, the quantity to be expected from any weight of the ore on a larger scale. In selecting the ores, care should be taken to have small portions from different specimens, which should be pulverized, and well mixed in a metal mortar. The proper quantity of the ore is then taken, and if it contain either sulphur or arsenick, it is put into a crucible or test, and exposed to a moderate degree of heat, till no vapour arises from it; to assist this volatilization, a small quantity of powdered charcoal is sometimes added.

To assist the fusion of the ores, and to convert the extraneous matters connected with them into scoria, assayers use different kinds of fluxes. The most usual and efficacious materials for the composition of these are, borax, tartar, nitre, sal ammoniack, common salt, glass, fluor-spar, charcoal powder, pitch, lime, litharge, &c., in different proportions.

We may here more particularly mention two or three fluxes. The white flux consists of one part of nitre and two of tartar, well mixed together. The Cornish reducing flux consists of ten ounces of tartar, three ounces and six drachms of nitre, and three ounces and one drachm of borax, mixed well together. These answer every purpose, provided the ores be deprived of all their sulphur; or, if they contain much earthy matters; because, in the latter case, they unite with them, and convert them into thin glass: but if any quantity of sulphur remain, these fluxes unite with it, and form a compound, which has the power of destroying a portion of each of the metals; consequently, the assay, under such circumstances, must be very inaccurate. The principal difficulty in assaying appears to be in the appropriation of the proper fluxes to each particular ore, the successful performance of which requires a degree of knowledge that can only be attained by an extensive practice.

The late celebrated Bergman first suggested the moist process for assaying. It depends upon a knowledge of the chymical affinities of different bodies for each other, and must be varied according to the nature of the ore; it is very extensive in its application, and requires great patience and address in its execution To enable our readers to under-

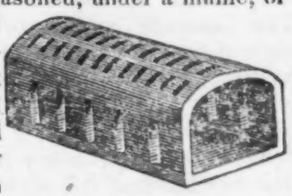
stand the process of assaying generally, it may be advisable to furnish a more particular account of both methods.

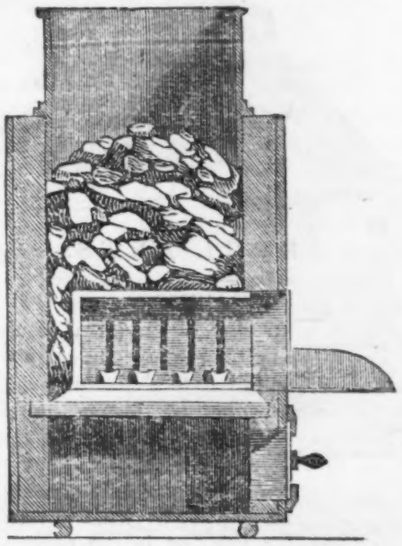
We may commence by pointing out the process for assaying copper ores. The experimentalist should take an exact troy ounce of the ore, previously pulverized, and calcine it thoroughly, stirring it all the time with an iron rod, without removing it from the crucible; after the calcination, an equal quantity of borax must be added, half the quantity of fusible glass, one fourth the quantity of pitch, and a little pounded charcoal. Cover the mass with common salt, and put a lid on the crucible, which is to be placed in a furnace: the fire is to be raised gradually till it burns brightly, and the crucible continued in it for half an hour, stirring the metal frequently with an iron rod; and when the scoria which adheres to the rod appears clear, then the crucible must be taken out, and suffered to cool; after which it must be broken, and the regulus separated and weighed; this is called black copper, to refine which, equal parts of common salt and nitre are to be well mixed together. The black copper is brought into fusion, and a teaspoonful of the flux is thrown upon it, which is repeated three or four times, when the metal is poured into an ingot-mould, and the button is found to be fine copper.

We may now point out how the process should be performed in the humid way. Make a solution of vitreous copper ore, in five times its weight of sulphurick acid, and boil it to dryness; add as much water as will dissolve the sulphate of copper thus formed; in this solution place a clean bar of iron, which will precipitate the whole of the copper in its metallick form. If the solution be contaminated with impure iron, the copper must be re-dissolved in the same manner, and precipitated again.

We come now to the precious metals, which will require a more particular illustration. The experimentalist must take the assay quantity of the ore finely powdered, and, after roasting it well, add to the residuum about double the quantity of granulated lead. It must then be put in a covered crucible, and placed in a furnace; raise the fire gently at first, and continue to increase it gradually till the metal begins to work: if it should appear too thick, make it thinner by the addition of a little more lead; if the metal is too rapidly excited, the fire should be diminished. The surface will be covered by degrees with a mass of scoria, at which time the metal should be carefully stirred with an iron hook, heated, especially towards the border, lest any of the ore should remain undissolved; and if what is adherent to the hook, when raised from the crucible, melts quickly again, and the extremity of the hook, after it has become cold, is covered with a thin, shining, smooth crust, the scorification is perfect; but, on the contrary, if, while stirring it, any considerable clamminess is perceived in the scoria, and when it adheres to the hook, though redhot, and appears unequally tinged, and seems dusty or rough, with grains interspersed here and there, the scorification is incomplete; in consequence of which, the fire should be increased, and what adheres to the hook should be gently shaken off, and returned with a small ladle into the crucible again. When the scorification is perfect, the metal should be poured into a cone, previously rubbed with a little tallow, and when it becomes cold, the scoria may be separated by a few strokes of a hammer. The button is the produce of the assay.

To perform the same process by cupellation, take the assay quantity of ore, roast and grind it with an equal portion of litharge, divide it into two or three parts, and wrap each up in a small piece of paper; put a cupel, previously seasoned, under a muffle, of which a representation is given in the accompanying figure, with about six times the quantity of lead upon it. When the lead begins to work, carefully put one of the papers upon it, and, after this is absorbed, put on a second, and so on till the whole quantity is introduced; then raise the fire, and as the scoria is formed, it will be taken up by the cupel, and at last the silver will remain alone. This will be the produce of the assay, unless the lead contains a small portion of silver, which may be discovered by putting an equal quantity of the same lead on another cupel, and working it off at the same time; if any silver be produced, it must be deducted from the assay. This is called the "witness." The common sort of furnace in which the assay is carried on, is shown in the cut beneath. The muffle and cupels are seen beneath the fuel.





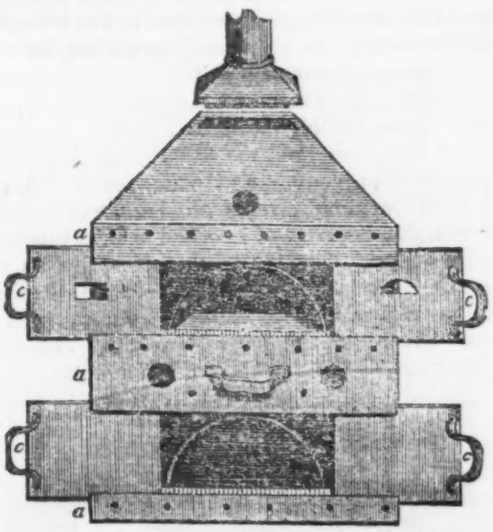
To effect the same thing in the humid way, boil the silver ore in dilute nitrous acid, using about twenty-five times its weight, until the sulphur is quite exhausted. The silver may be precipitated from the solution by muriatick acid, or common salt. Fixed alkalis precipitate the earthy matters, and the prussiate of potassa will show if any other metal be contained in the solution.

The general method of examining the purity of silver is, as we have already seen, by mixing it with a quantity of lead proportionate to the supposed quantity of alloy; by testing this mixture, and afterward weighing the remaining button of silver. This is the same process as refining sugar by cupellation.

It is supposed that the mass of silver to be examined consists of twelve equal parts, called pennyweights; so that if an ingot weighs an ounce, each of the parts will be one twelfth of an ounce; hence, if the mass of silver be pure, it is called silver of twelve pennyweights; if it contains one twelfth of

its weight of alloy, it is called silver of eleven pennyweights; if two twelfths of its weight be alloy, it is called silver of ten pennyweights, which parts of pure silver are called five pennyweights. It must be observed here, that assayers give the name pennyweight to a weight equal to twenty-four real grains, which must not be confounded with their ideal weights. The assayers' grains are called fine grains. An ingot of fine silver, or silver of twelve pennyweights, contains, then, two hundred and eighty-eight fine grains; if this ingot contain one two hundred and eighty-eighth of alloy, it is said to be silver of eleven pennyweights and twenty-three grains; if it contain four two hundred and eighty-eighths of alloy, it is said to be eleven pennyweights, twenty grains, &c. Now, a certain real weight must be taken to represent the assay-weights; for instance, thirty-six real grains represent twelve fine pennyweights; this is subdivided into a sufficient number of other smaller weights, which also represent fractions of fine pennyweights and grains.

We have already shown the form of the common furnace, but think it advisable to add a view of another of more general application.



The construction of this very useful furnace is simple, and will readily be understood. Its form is square, terminating in a truncated pyramid. The doors should be provided with handles of some non-conducting material, and the semi-circular apertures shown in the figures are found useful. The fuel is put in at the top.

We may, in conclusion, notice the mode of assaying ores and earths containing gold. That which is now most generally used is by amalgamation; the proper quantity is taken and reduced to a powder, about one tenth of its weight of pure mercury is added, and the whole triturated in an iron mortar. The attraction subsisting between the gold and mercury quickly unites them in the form of an amalgam, which is pressed through chamois-leather; the gold is easily separated from this amalgam by exposure to a proper degree of heat, which evaporates the mercury and leaves the gold. This evaporation should be made in a furnace, with a current of air ascending a pipe in which the mercury is condensed.

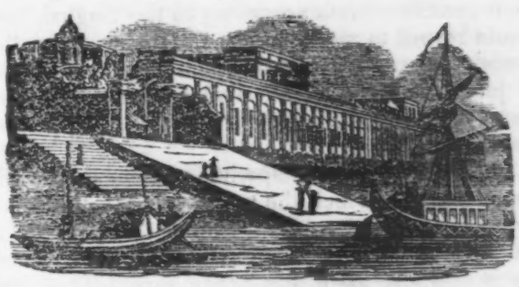
Cyclopedia of Arts, Sciences, &c.

AMERICAN COMMERCE.

Under the head of American commerce, we propose to give brief sketches illustrated with views of the ports visited by American ships. We begin with

CALCUTTA.

Calcutta, the capital of Bengal, is situated on the west branch of the Hoogly, an arm of the Ganges, on which the largest East Indiamen may come quite up to the city. The navigation, however, on account of several sand-banks, which are continually changing their size and position, is very dangerous. This place, formerly the insignificant village of Govindpour, rose, in the last century, to the size of a great city, of which we give a representation in the subjoined engraving.



The climate was formerly unhealthy; but it has been gradually becoming less fatal to settlers, partly by the removal of a forest near the city, and partly by greater attention, in the settlers themselves, to their mode of living. Notwithstanding the unhealthiness of the place it continued steadily to increase, quickly recovered from its losses in 1756, and is new one of the most magnificent cities in the East. In 1802, the population was computed at 600,000; a few years after, (including the suburbs,) at 1,000,000, of which about one half may be given to the city. The population of the surrounding districts, within a space of twenty miles, was estimated, in the same year, at 2,225,000 inhabitants. The houses of the Europeans, who occupy a separate quarter of the city, are of brick, elegantly built, and many of them like palaces. On account of the heat of the climate, they are not joined together, but stand at some distance from each other, have high and airy apartments, flat roofs, and are surrounded with verandahs. With this part of the city, "the *black town*," so called (the *Peltah*,) which is the quarter occupied by the natives, forms a striking contrast. It has extremely narrow and crooked streets, interspersed with gardens and innumerable tanks. Some of the streets are paved. The houses, which are some of brick, some of mud, but mostly of bamboo or straw mats, present a motley appearance.

Fort William, not far from the city, was begun by Lord Clive, in 1757, and is a magnificent work, in the form of an octagon, but on too extensive a scale for the purpose of defence. It has bomb-proof barracks, large enough for ten thousand men, and would require six hundred pieces of cannon for the works. It commands the river. A trench is drawn round the whole, which may be filled, in case of need, with water from the Hoogly, to the depth of eight feet. Between fort William and the city there is a

plain, which forms a favourite promenade of the inhabitants. Hindoos, blacks, Europeans, equipages of all sorts, and palanquins, are here seen mixed together in a motley crowd. On the western side stands the new palace, built by the marquis Wellesley, at an expense of a million pounds sterling, and reminding one, by its grandeur, of the fabled palaces of Arabian story. The old fort is now a custom-house, and the infamous "Black Hole" has been turned into a warehouse.

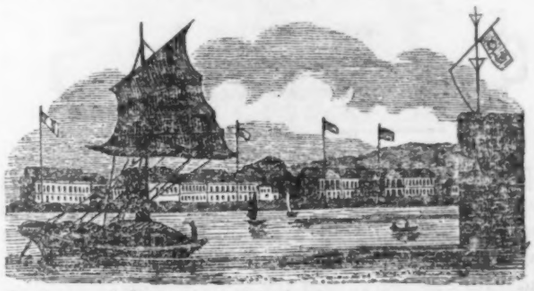
An obelisk, fifty feet high, at the entrance, contains the names of the unfortunate captives, who, in 1756, when the city was taken and plundered by Suraja Dowla, fell victims to the most inhuman cruelty. In the middle of the city is a large tank, for the purpose of supplying the inhabitants during the hot season, when the river-water becomes offensive. Here is the residence of the governour-general of India, and the seat of the supreme court of justice, which decides causes according to the English law, without regard to rank, station or country. Smaller offences are tried by the superintendent of police and justices of the peace. Order is maintained by several companies of sepoys, who make regular patrols through the city.

Calcutta is the great emporium of Bengal, and the channel through which the treasures of the interiour provinces are conveyed to Europe. The port is filled with ships of all nations. Mercantile enterprise is nowhere more active than here. There are some houses which trade, annually, to the amount of four or five million pounds sterling. The trade in sugar, opium, silk, muslin, &c., is very considerable. Large quantities of salt are exported to Assam, and gold, silver, ivory, musk, and a peculiar kind of silky cotton, are brought back in exchange. Cowries, a kind of small shels, passing as coin, are received in exchange for rice from the Maldives. The trade with Pegu, Siam, and the Malay isles, formerly so profitable, has of late very much declined. The Monglo merchants are the wealthiest; and as they lend only at an enormous interest, their profits, from this source, are three times as great as a capital commonly gives. The Hindoos remain fixed, however rich they may become, in their narrow views, and accustomed frugality. Their houses and shops are mean, and it is only on occasion of their nuptials and religious festivals, that they indulge in any extraordinary expense. They then assemble under magnificent illuminated canopies, distribute rose-water and other perfumes in profusion, and regale themselves with confectionary from golden vessels, while they are entertained by the voices of singing girls, or the exhibition of a pantomine.

The petty trade of Calcutta is mostly in the hands of the Banyans and Sarkars, who are constantly on the watch for cheap purchases, and make use of the lowest artifices to impose on their customers. This kind of deception is so far from being in disrepute among their countrymen, that they honour the adepts in it with the title of *pucka adme*, which signifies a man of great talent.

Calcutta contains many institutions for the relief of the indigent. Of this kind are, an hospital for those natives who are in want of medical aid, two schools for orphans whose fathers were in the service of the company, a free school, &c. The college of fort William, founded by the marquis Wellesley, has been changed, in part, from its original plan, which was, notonly to instruct the youth in the service of the company in the languages, and other branches of study necessary for their profession, but also to watch over their behaviour, and to guard them from the dangers to which they were exposed by their inexperience. The latter part of the plan is now given up. The Asiatick society, founded by Sir William Jones, in 1784, is devoted to the study and explanation of the literature, history, antiquities, arts and sciences of Asia. The papers already published are, generally, of great value.

Canton, a principal city of the Chinese province of the same name, otherwise called *Quang-tong*, or *Koanton*, is situated on the banks of the river Taho, which is here very wide. This city, distinguished for size, wealth, and a numerous population, is the only seaport in China, open to the ships of Europe and America. The estimate of missionaries, that it contains 1,000,000 inhabitants, is exaggerated. The number is probably nearer 750,000. The circuit of the walls, which are of a moderate height, exceeds nine miles. Only about a third part, however, of the space enclosed is covered with buildings; the rest is occupied with pleasure-gardens and fish-ponds. The neighbouring country is very charming, hilly towards the east, and presenting in that quarter, a beautiful prospect. The houses are mostly of one story; but those of the mandarins and principal merchants are high and well built. In every quarter of the town and the suburbs are seen temples and pagodas, containing the images of Chinese gods. The populous streets are long and narrow, paved with flat stones, and adorned at intervals with triumphal arches. Shops line the sides, and an unbroken range of piazza protects the occupants of the houses, as well as foot-passengers, from the rays of the sun. At night, the gates are closed, and bars are thrown across the entrance of the streets.



A view of this city, with the large commercial factories is given in the above engraving.

The traders express themselves with sufficient fluency in the languages of their European and American customers, with whom they deal almost exclusively, selling them porcelain, lackered wares, &c. The greatest part of the silver which is carried from America to Europe, eventually circulates through China, by means of the ports of Canton and Batavia, to which large supplies of the productions of the empire are transmitted. The principal articles of export are tea, Indian-ink, varnish, porcelain, rhubarb, silk, and Nankeen. A company, consisting of twelve, or thirteen merchants, called the *Hong*, is established here, by order of the government, for the purpose of purchasing the cargoes of foreign ships, and supplying them with return cargoes of tea, raw silk, &c. This society interferes, undoubtedly, with private

trade, but adds greatly to the security of the foreign dealer, as each member is answerable for all the rest. Carriages are not used here, but all burdens are transported on bamboo poles laid across the shoulders of men. All the inhabitants of distinction make use of litters. Chinese women are never seen in the streets, and Tartar women but seldom. The different factories are situated on a very commodious quay, on the bank of the river. Nearly a league from Canton is the *Boat-town* which consists of 40,000 barks, of various kinds, arranged close to each other in regular rows, with passages between them, to allow other vessels to pass. In this manner they form a kind of floating city, the inhabitants of which have no other dwellings, and are prohibited by law from settling on shore. As this is the only emporium in the empire for foreign commerce, which is carried on not only by Europeans and Americans, but also to a great extent by the Chinese themselves, with almost all the ports of India and the eastern Archipelago, the number of vessels frequently seen in the river, at once, is said to exceed five thousand. The climate of Canton is healthy, warm in the summer, but rather cold in winter. Provisions, including various luxuries, are abundant. Lat. 23° 30′ N., lon. 113° 2′ 45″ E.

[For the Family Magazine.]

RUSSIAN COSTUMES.

[Young Girl.]

The character and manners of the Russian people, which deserve to be studied in so many respects, are but little known. Most travellers who have written on this subject have formed their opinions from seeing St. Petersburgh, Moscow, and some other of the principal cities, which present much of European civilization; but there are parts of this vast empire which are yet truly barbarous.

The nobles of Russia are divided into two classes: the *Boiards*, who usually reside in the two capitals, are highly civilized; but those of them who are called *radically* Russians, and whose natural pride will not permit them to fawn at court, and solicit the honours and offices too frequently conferred on adventurers from different parts of Europe, live like satraps in their own chateaux. In fact, the Russians are now nearly the same as they were in the time of Iwan Grozny, (Ivan the Terrible,) that is, ignorant, superstitious, and fanatical; but hospitable and kind in rural life, and submitting to their state of slavery and its consequences with becoming resignation. As an instance of this last remark, we will state the following fact:—A Russian officer ordered his servant, who had lately arrived from the provinces, to hold his cloak during the military parade, and not to stir from the spot till he (the officer) had returned. Either from accident or necessity, the officer did not return for several hours; when he found his servant dead upon the snow, but with the cloak on his arm. This man preferred to perish with cold rather than leave the spot or to cover himself with his master's garment.

[A Milkmaid.]

Many natural plays and games maintain their primitive originality. In several provinces, during the winter, groups of peasants may be seen on the ice, engaged in the terrible game called *koulatchki*, (*fistycuffs*,) which generally terminates in the deaths of several of the combatants. Even at St. Petersburgh there are some customs which, at least, should be confined to the provinces. For instance, on the day of Pentecost, the inhabitants assemble in the

Letni sad, or summer garden. The principal alley of this garden is filled with young marriageable girls, who expect the arrival of young men, to select wives. Marriage contracts are made, and the marriages are celebrated a few days afterward. In this manner the labourers and small dealers in St. Petersburgh are married

[A Married Woman.]

This ceremony occurs every year. Formerly the young ladies were arranged in two rows, but for the last twenty years they merely walk around with their parents.

Most of the costumes of the Russians have also preserved their primitive forms. Our first engraving represents that of a young girl: the head-dress, termed *kehochnike*, is rather picturesque; it is made of pasteboard, covered with a band of velvet, or with blue or amaranthine-coloured silk, richly embroidered with gold or silver, and sometimes ornamented with pearls or precious stones. In the second picture, we have the costume of a milkmaid, or married peasant; and in the third, that of a married woman. The illustration at the close of the article represents a Russian priest in his characteristick dress.

These costumes ought now to be seen at St. Petersburgh; as the emperour has published an kase, intimating to the ladies not to appear at court imperial ceremonies except in their national costumes.

Mag. Pittoresque.

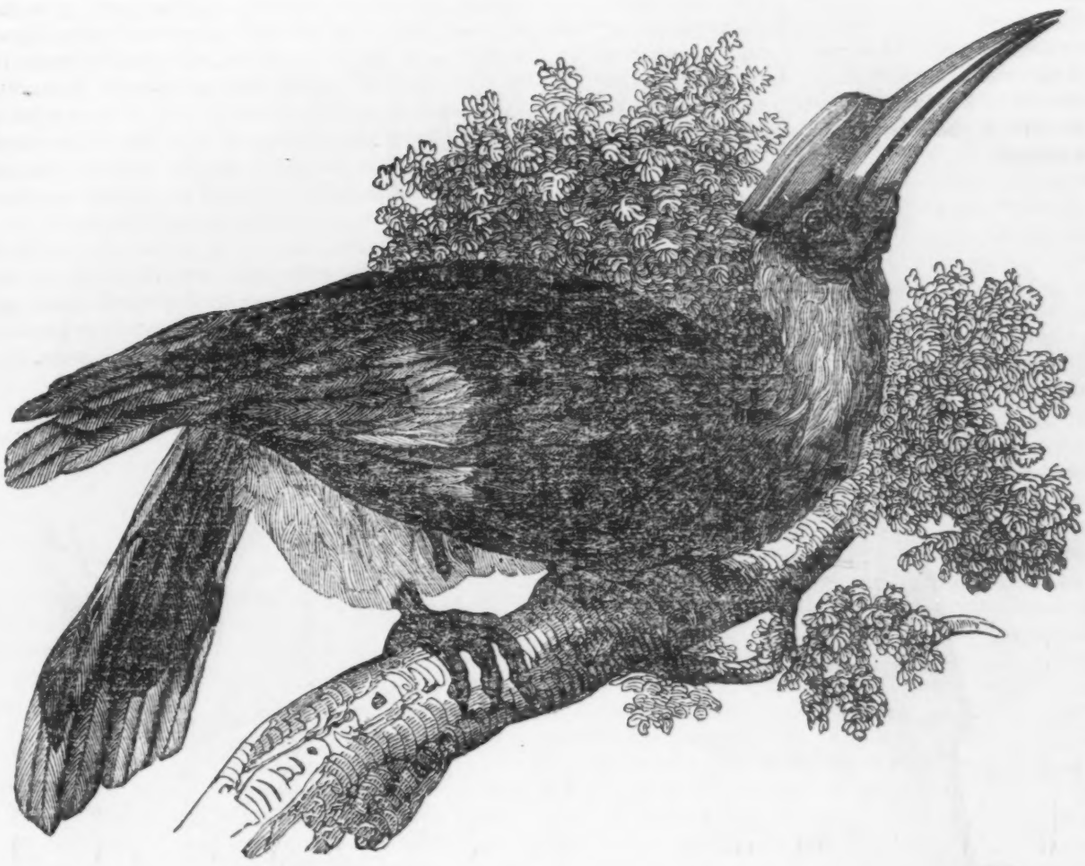
[A Russian Priest.]

NATURAL HISTORY.

HORNBILLS.

Like the ravens and vultures, these birds perform the part of scavengers in the countries which they inhabit. They abound in South America and Southern Africa, and feed chiefly upon offal and carrion. Le Vaillant saw the coronated species in Caffraria, congregating in flocks of five hundred, along with crows and vultures, over the remains of slaughtered elephants. In the absence of their favourite food, they prey upon frogs, lizards, and insects, and, when hard pressed, pursue small birds and quadrupeds; and have been even known to follow the sportsman, for the purpose of catching the disabled victim of his pleasure.

They are generally of a heavy form, with limited powers of flight. The feature by which they are principally distinguished, and after which they are named, is an enormous toothed bill, surmounted by a singular protuberance, called the casque, or helmet. These organs are so curiously diversified, that each species might almost stand for a distinct genus. In some, the casque bears the form of a simple horn; in others it is double. Several have it turned up at the end, and convoluted in a spiral manner. Some have it flat and broad; others narrow, convex, and ribbed; and in the one we have engraved, it is convex and smooth. The use of these strange appendages is not known; many have conjectured them to be weapons either of offence or defence, but this is not borne out by their internal structure, which is that of a series of light cellular chambers, adhering irregularly together, and covered on the outside with a hard bony shell; nor is it supported by the habits of the bird, which are shy, sluggish, and cowardly The most probable surmise is, that they subserve the sense of smell in some way with which we are not



[Himalayan Hornbill.—*Buceros Cavatus.*]

acquainted, and which a number of careful dissections, aided by close observations of the living bird, can alone demonstrate.

The forms of the bill are still further varied according to the age of the bird: a circumstance which has made the identification of the species a work of great labour.

The bills in all the species are long, curved gradually downward from the base, and more or less jagged on the edges. The nostrils are placed behind the base of the bill, and covered by a membrane. The legs, robust and short; the feet, in all the species, covered with scales; the three toes directed forward, almost of equal length, and so nearly united together at the base as almost to form a sole: the hind toe is large and flat, and gives a powerful support to the bird, which, nevertheless, does not move by walking, but by leaping with the feet together. The first three quill-feathers of the wings are graduated, the fourth or fifth being the longest.

The species we have figured is a native of the Himalaya mountains. Its body is about the size of a small goose; the wings short, and its whole structure loose, but powerful. The bill and casque are of a bright yellow, tinged in some places with red; cheeks, back of the head, and neck, white; back, belly, and wings, black; wing-coverts and tips of quills, white; thighs white and tail white, with a black band across the middle.

Mr. Griffiths remarks, that the forms of the bill connect the birds by a close analogy with the toucans, while their port and habits approximate them to the ravens, and their feet to the bee-eaters and king-fishers.

Hornbills associate in large flocks on the tops of high trees, and are particularly fond of dead branches, on which they repose with an air of ludicrous gravity. Naturalists enumerate about twenty-five species.

For a full account of the whole family, with splendid figures of the birds, consult *Griffith's Appendix to Cuvier's Animal Kingdom*, "Aves;" *Le Vaillant's Histoire Naturelle d'une partie d'Oiseaux nouveaux et rares de l'Amerique et des Indes;* and *Temminck's Planches Coloriées.*

[From the National Intelligencer.]

THE LAND WE LIVE IN.

Oh! 'tis a noble heritage—this goodly land of ours—
It boasts indeed nor Gothick fane, nor "ivy-mantled towers;"
But far into the closing clouds its purple mountains climb—
The sculpture of Omnipotence, the rugged twins of Time.

And then its interlinking lakes, its forests wild and wide,
And streams—the sinews of its strength—that feed it as they glide;
Its rich primeval pasture-grounds, fenced by the stooping sky,
And mines of treasure, yet undelved, that 'neath its surface lie.

Magnificent materials! how hath the hand of man
Been following out the vast design of the Eternal plan!
Lo! where canals and railroads stretch, that mountains fail to bar!
Behold where cleaves the wingless bark, and flies the steedless car!

Swift from the leafy wilderness upsprings the peopled town,
While streams where rock'd the frail canoe, a freighted fleet bring down;
And where the panther howled unheard, and roamed the grisly bear,
The domes of graceful temples swell, where thousands kneel in prayer.

Oh! surely a high destiny, which we alone can mar,
Is figured in the horoscope where shines our risen star;
The monarchs all are looking on, in hope some flaw to see
Among the yet unbroken links that guard our liberty.

But may we disappoint the hope of every despot lord,
And keep our Union's Gordian knot uncleft by Faction's sword;
And as, with those girt in of yore, new provinces are twined,
Still let us with fresh bands of love the sheaf of freedom bind

Washington, July 4, 1836 J. B.

[For the Family Magazine.]

AMERICAN ANTIQUITIES.

The article on the ruins of Palenque, published in our last number, naturally attracted much observation; and, for the gratification of many of our readers, we present them, on the opposite page, with an engraving of a civil edifice at Palenque.

In a late English paper, we notice the following: "At a late meeting of the London Geographical Society, Mr. Waldeck offered a few observations on the remains of early American civilization, which his drawings on the table represented. Beyond all question, they were of very high antiquity: on the top of one, he had himself cut down a tree, the concentrick circles in a section of which indicated a growth of 973 years, and the building must have been a ruin when it first took root. The sculpture on these buildings was still extraordinarily perfect; and he believed that he had found a key to the hieroglyphicks introduced in it, which proved them to have phonetick power. He was not prepared at the moment to go into the subject at length, but he had materials with him for several publications on it, which he considered of great interest; and having devoted thirteen years and above eight thousand pounds to the collection of these materials, he was prepared to make still further sacrifices, in order to bring them advantageously before the public. He meant very shortly to publish a prospectus of his intended work, and to solicit subscriptions to it. He would engrave the drawings himself, in order to keep down the expense. Colonel Galindo, of the Central American service, offered some remarks on the high antiquity of American civilization. He was disposed to consider even the ruins described by Mr. Waldeck as comparatively of modern date; and he thought that the decay of the native American tribes indicated senility, to a degree which might almost warrant the belief that America was the first rather than the last-peopled quarter of the globe. He admitted that these opinions appeared visionary, when thus stated, without the grounds on which they otherwise rested; yet they were the result of much study and reflection on his own part, and he was strongly convinced of their substantial accuracy."

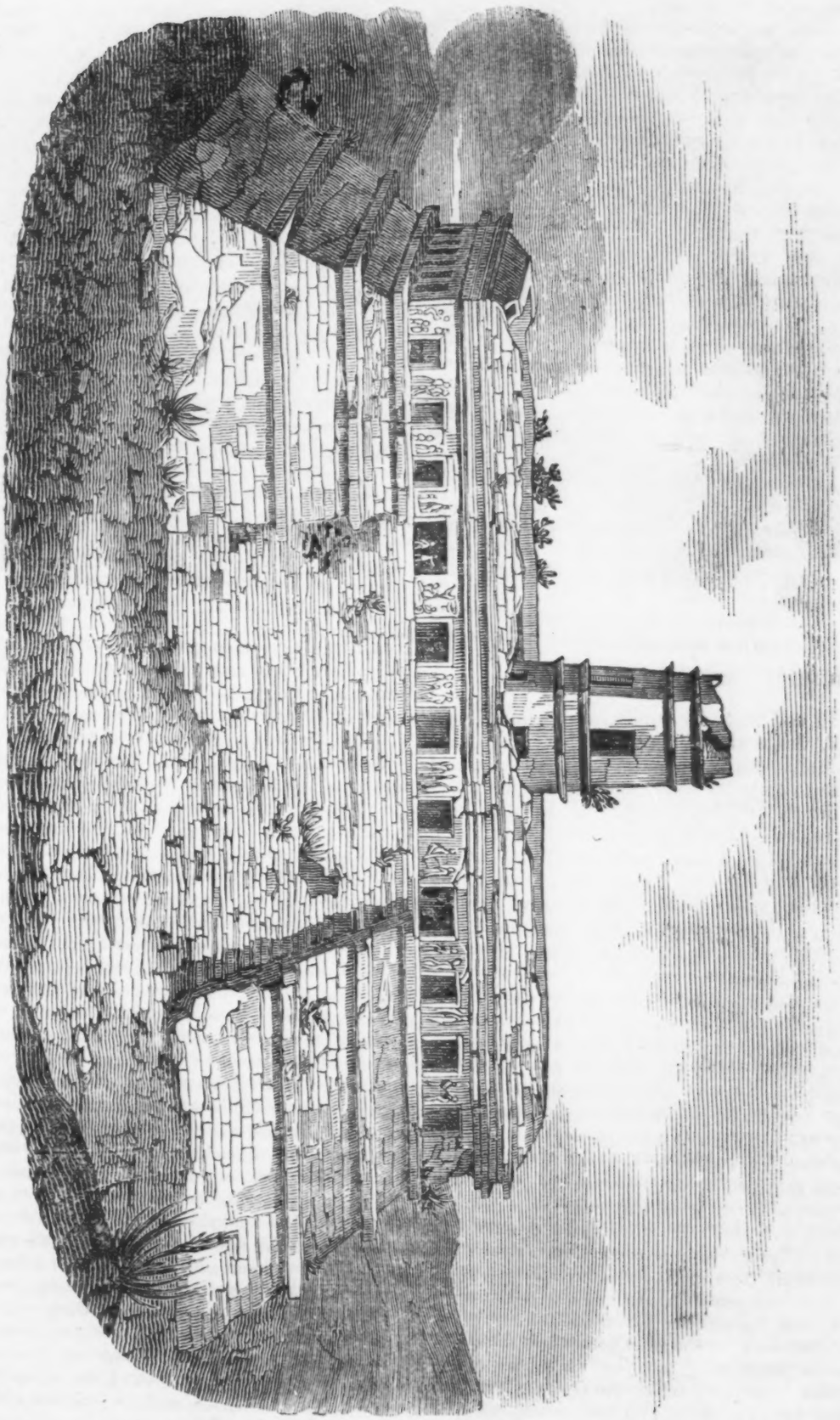
A valued correspondent remarks: "The article on the American city was altogether new to me, and most interesting. The clew to the great mystery is now at length, I doubt not, found, and it becomes us to follow it out. This, however, must be done on the spot. The savage ignorance of the aborigines north of Mexico can furnish nothing in the shape even of tradition worthy of notice. In Mexico and the more southern countries, there was a comparative degree of civilization, that offers fair room for hope that, with the start we now have, much may be done. From Valparaiso to Cape Blanco, the coast of South America is a desert, save where the rivers, few and small, produce a limited patch of verdure, and throughout the whole extent of this district, (bounded on the west by the sea and on the east by the mountains,) more or less of the ruins of towns may be seen, of which the Grand Chimu may be taken for example. You are aware, no doubt, how much the Spanish possessions in America were exposed to the depredations of the English, who, since the days of the Scandinavians, have, of all nations, carried piracy to the greatest extent. To provide, in some measure, against such assailants the Spaniards built their towns at such a distance from the coast as would enable them to have more notice of the approach of an enemy, from whose mercy experience had taught them to expect nothing but torture so cruel, that merely to read the accounts given of it by the miscreants themselves is almost more than humanity can bear.

Truxillo is situated about nine miles from the coast, the intermediate country being a desert of sand, in which stand the ruins of the Grand Chimu, its breadth occupying one third of the whole space between the port and city of Truxillo, (six miles,) and its length, parallel with the coast, nine miles. It has been almost entirely buried in sand; but a great deal of this has been from time to time removed, for the sake of the treasure frequently found in the burial-places, called "*Guaca*." There is a tradition in general credit there, and I believe well-authenticated, that a Spaniard had rendered an important service to an Indian, and the latter, moved by gratitude, told him that he knew where two *fish* were to be found, one large and the other small; the latter he showed him immediately, and it turned out to be a recess in a Guaca of the Grand Chimu, containing gold to the amount of one million and a half of dollars. Death, accident, or some other cause, prevented him from showing the larger *fish*.

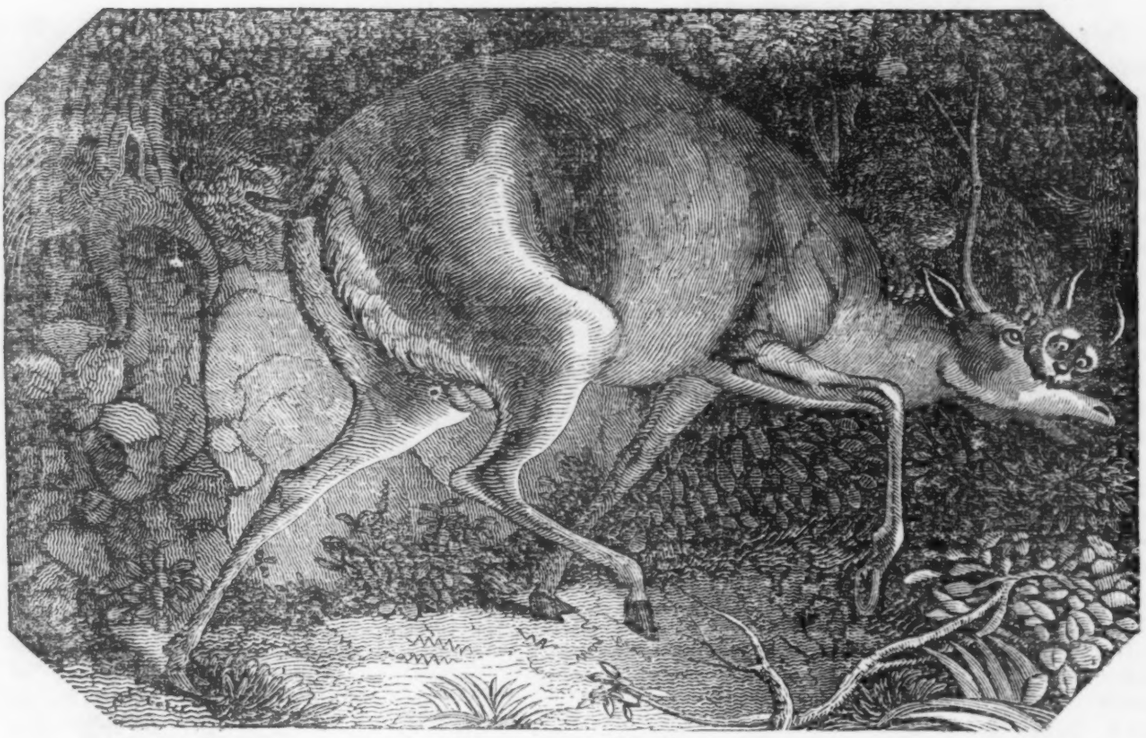
The royal share of the *treasure trove* was ten per cent.; and, *it is said*, that in one year, from the Grand Chimu alone, it amounted to five millions of dollars. About this, however, I am not so certain; for the other parts of this account I will be responsible.

Through the city runs a channel, which bears every mark of having been the bed of a river, as abraded pebbles, &c. It is between forty-five and sixty feet wide, and ten or twelve feet deep. The houses are spacious, and built of sun-dried bricks, there being no stone in the neighbourhood fit for building. Truxillo itself is built almost entirely of reeds. The soil, either from an abundance of saltpetre, or some other cause, preserves the bodies of those buried in it from putrefaction: the liquid portions passing off, the solids remain hard and black. The sculls of the Grand Chimuans are said to be particularly deficient in foreheads, and no two bodies can be found occupying exactly similar postures: some of them are standing, some sitting, some squatting, &c.; and of these last, for instance, the position of the heads, arms, feet, or hands of each, always differs from the others. In the Guacas are found vessels of black earthenware, curiously fashioned, with grotesque figures upon them, and containing a sort of beer, still used by the Indians, made of meal. These vessels sometimes contain toys, as whistles, in the shape of animals; but made with so uncertain a hand, that the one seen by my friend was determined to have been intended either for a dog or seal; which, he knew not; but, upon being blown into, emitted a sound not unlike the barking of a dog."

The above remarks are extremely interesting; and, as our correspondent observes, it would seem as if the clew to the mystery attending the early settlement of America, and its original inhabitants, if not exactly found, is at least in a fair way to be traced out. Under the head of *Miscellany*, will be found an account of the discovery of a brazen arrow, &c., which we commend to the notice of our readers.



[A Civil Edifice at Palenque.]



[Death of the Antelope.]

[For the Family Magazine.

A HUNT AT GAZYPOOR.—From the French.

When I had made my purchases of otto of rose, (*atta goul,*) the merchant, (*Agoub,*) a young and fine-looking Mohammedan, made me a low *salam*, and invited me to go to his house, and partake of a collation. I did so. "I beg pardon," said he—hurrying his light repast—"I beg pardon, but I have made an engagement for a hunt, and I am afraid that my friends will wait for me." "A hunt!" said I, my eyes glistening with delight at the prospect of being of the party. He had already risen; his hand rested on his sabre; an Indian slave was about to saddle his horse. "Will you go with us?" said he; "my companions will be happy to see you.—Ghaed, saddle another horse.—You are anxious to see the fields of roses," he resumed, "and it is in these that we are going to chase an antelope. To horse, and away!" We departed. We soon left Gazypoor in the distance, and I found myself in the fields of roses.

The precious essence of roses, so celebrated in all parts of the civilized world as one of the principal productions of the Indies, is made from flowers which grow abundantly in the fields around Gazypoor. Their cultivation, however, presents nothing romantick; it is merely a matter of business. Although the rose of India differs in size from our roses, yet its perfume is equally sweet. The Indian cultivators, however, content themselves with nature's productions as they find them. They never avail themselves of the resources of art. They regard the rose as a merchandise too costly to be cultivated for ornament, and for their purposes the natural rose is amply sufficient.

The roses of Gazypoor are planted in regular lines, in fields of several hundred acres extent, all around the city. Their purple flowers, which open to the rays of the morning sun, and enamel the green plains, present an agreeable prospect. When the season for gathering has come, there are no bands of young maidens, with garlands in their hair, to pluck the sweet-smelling flowers, but they are pulled by poor labourers, who merely look for their daily stipend.

In manufacturing the otto, the first operation is to distil the roses (*goulaa biepaan*); the essence obtained is deposited in large vases, which are exposed to the air during the night. Occasionally these jars are skimmed, and the essential oil, which floats on their surface is removed; this oil is that concentrated essence so much prized by amateurs, and which is termed otto (*atta*) of roses.

The rosewater, which is deprived of its essential oil, is much inferiour, and much less costly than that which has preserved it; but it is said that the difference between the two is barely perceptible. Rosewater is used universally by the East Indians in their domestick economy. It is employed for ablutions, for a medicine, and in their cookery. It is poured on the hands at the commencement of a repast, and is taken internally for every disorder.

While I was passing over the plains of Gazypoor with my companions, our huntsmen suddenly shouted, "An antelope! an antelope!" and, on looking, I saw one of these animals rapidly descending from a mountain. We immediately gave chase, and truly animated was the scene: our fiery horses, with their necks extended, their mouths foaming, and rivalling the antelope in swiftness, added not a little to the picture. Soon, however, the animal grew fatigued; his pace slackened, his legs trembled, and he seemed ready to drop down; when a tame lynx, which had been educated for the business, jumped from behind a huntsman, threw itself on the head of the antelope, and soon destroyed it, amid the shouts of my companions.

After this, we returned to Gazypoor, and took dinner in a large oriental saloon.

ILLUSTRATIONS OF SCRIPTURE.

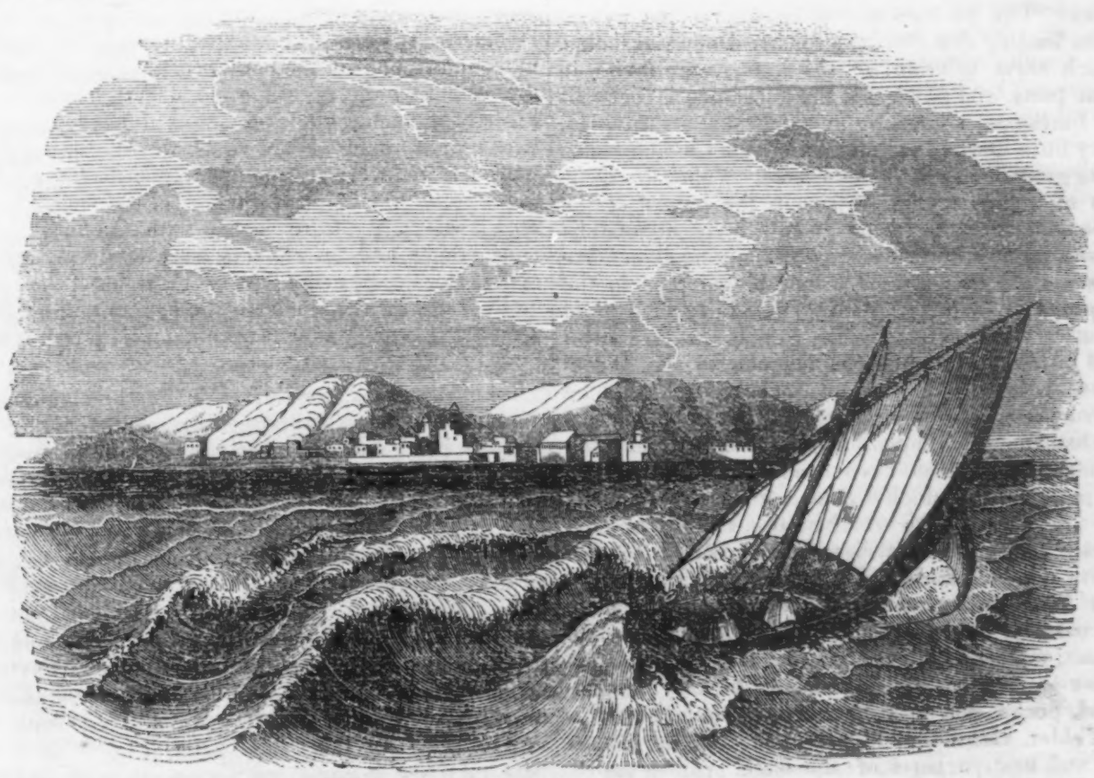
Our cut represents a view of Suez, which by many is regarded as the spot where the Israelites crossed the Red sea.

Suez is a small seaport town, situated near the northern extremity of the Red sea, and about thirty hours' journey east from Cairo. The country around it is a sandy plain, without the smallest spot of verdure. The only water which can be drunk is brought from El-Naba, or the spring, at the distance of three hours journey, and it is very brackish. The town itself is a collection of miserable ruins, the kahns being the only solid buildings; yet from March till June, the season when the Jidda and Yambo fleet arrives, the town becomes crowded; but after its departure nobody remains except the governor, who is a Mamaluke, twelve or fourteen persons who form his household, and the garrison. The fortress is a defenceless heap of ruins, which the Arabs consider as a citadel, because it contains six brass four-pounders, and two Greek gunners, who turn their heads aside when they fire. The harbour is a wretched quay, where the smallest boats are unable to reach the shore, except at the highest tides. There, however, the merchandise is embarked, to convey it over the banks of sand to the vessels which anchor in the road. This road, situated a league from the town, is separated from it by a shore, which is left dry at low water; it has no works for its defence, so that the vessels, which M. Volney tells us he has seen there to the number of twenty-eight at a time, might be attacked without opposition; for the ships themselves are incapable of resistance, none having any other artillery than four rusty swivels.

Suez has always been, notwithstanding its local disadvantages, a place of great trade, on account of its geographical situation. It was by the gulf of Suez that the commodities of India were formerly conveyed to Europe, till the discovery of the passage by the Cape of Good Hope converted that trade into a new channel.

As the isthmus of Suez, which separates the Red sea from the Mediterranean, is not more than fifty-seven miles, it has been frequently proposed to join these two seas together by a canal. As there are no mountains nor remarkable inequalities of surface, this plan would appear at first view easy to be executed. The great difficulty, however, arises from the nature of the corresponding coasts of the Mediterranean and the Red sea, which are low and sandy, where the waters form lakes, shoals, and morasses, so that vessels cannot approach within a considerable distance. Hence it is scarcely possible to dig a permanent canal amid these shifting sands, and the shore is destitute of harbours, which must be entirely the work of art. The country, besides, has no fresh water, and, to supply the inhabitants, it must be brought from the Nile.

The place on the west coast of the gulf of Suez, where the children of Israel are supposed to have entered it, is called *Badea*, about six miles to the north of Cape Korondel, on the other side of the gulf, as is stated in a letter from the ingenious Edward Wortley Montague, F. R. S., to Dr. Watson, containing an account of his journey from Cairo to the Written mountains in the desert of Sinai. Opposite to Badea is a strong current, which sets to the opposite shore, about southeast, with a whirlpool called *Birque Pharoane*, the *well* or *pool of Pharoah*, being the place where his host is said to have been destroyed. We are told, by the same gentleman, that the Egyptian shore, from Suez to Badea, is so rocky and steep, that there was no entering upon the gulf but at one of these two places.



[View of the Town of Suez.]

THE WESTERN "BARRENS."

Barrens are a species of country of a mixed character, uniting forest and prairie. They are covered with scattered oaks, rough and stunted in their appearance, interspersed with patches of hazel, brushwood, and tough grass. They appear to be the result of the contest which the fire is periodically continuing with the timber. The appearance of this description of country led the early settlers of the state to suppose that the scantiness of the timber was owing to the poverty of the soil; and hence the title, thus ignorantly given, and calculated to convey erroneous notions to our Eastern farmers, became of universal application to this extensive tract of country. It is ascertained, however, that these *barrens* embrace as productive a soil as can be found in the state—healthy, more rolling than the prairies, and abounding with that important requisite to desirable farms, good springs. The fire visits these barrens in the fall, but, owing to the insufficiency of the fuel, is not able to destroy, entirely, the timber. The farmer may settle, without hesitation or fear, in any part of this species of land, where he can find timber sufficient for his present purposes and wants; for the soil is supposed to be better adapted to all the interests of agriculture and the vicissitudes of the seasons than the deeper and richer mould of bottom and prairie land. Where the fire is prevented from its ravages, (as it easily can be by the occupant of the soil,) heavy timber springs up with a rapidity which would be incredible to the northern emigrant. High insulated *bluffs*, of a conical form, and exhibiting the appearance of connected ridges, rise up from the bottoms, along the rivers which meander and fertilize them: they are from one to three hundred feet in height. *Knobs* of land, stony and often rocky at their summits, are found along the rivers in some sections of the state, separated by deep ravines. The prairies are often intersected by ravines leading down to the streams. Deep sink-holes, which serve to drain off the waters, are found in some parts, and prove that the substance is secondary limestone, abounding in subterraneous cavities. Very little that is denominated in the Eastern states *stony* ground is found in this state. There are quarries of stones in the bluffs, in the banks of the streams, and in the ravines. In the vicinity of Juliet, and many other promising villages, an abundance of stone can be procured, admirably adapted to the purposes of building; uniting durability with great beauty and warmth. *Timber*, were it *equally* distributed in this state, would be adequate to the necessities of the settlers. Its apparent scarcity, where the prairie prevails, is now considered not to be so great an obstacle to settlement as has been generally imagined. Substitutes have been found for many of the purposes to which timber is generally applied; and the rapidity with which prairie, under the hand of care and cultivation, becomes converted into forests of timber, affords a sure guarantee for the future. The kinds of timber most abundant in the state are oaks of the various species, black and white walnut, ash of the several varieties, elm, sugar-maple, honey-locust, hackberry, linden, hickory, cotton-wood, pecan, mulberry, buckeye, sycamore, cherry, box. elder, sassafras, and persimon. In the southern and eastern parts of the state, yellow-poplar and beech may be found. Near the Ohio are cypress-trees, and in several counties clumps of yellow-pine and cedar. On the Calumet, near the south end of lake Michigan, is a forest of small trees. The underwood growth consists principally of redbud, pawpaw, sumach, plum, crab-apple, grape-vines, dogwood, spicebush, green brier, hazel, &c. The trees in this state are very luxuriant in their growth, and are frequently found of a stupendous size, particularly the cotton-wood and sycamore, on the alluvial soil of the rivers. The black-locust, a native of Ohio and Kentucky, may be cultivated from the seed, with less labour than a nursery of apple-trees. Of rapid growth and affording valuable and durable timber, it strongly commends itself to the attention of our farmers. It forms one of the cleanliest, most beautiful, and pleasant shades; when in the spring-time of its blossom, it presents a rich and attractive appearance, and sends into the surrounding atmosphere a delicious fragrance. And here we might properly call the attention of our farmers and agriculturists generally, to the subject of nurseries of fruit and ornamental trees. With a soil remarkably adapted to their cultivation, and a country rapidly increasing in wealth, and the consequent conveniences and luxuries of life, the enterprising arborist would receive the most grateful encouragement and profit for his labours; increase, in this new and rapidly advancing state, the sources of beauty and pleasure, and enjoy the gratification of witnessing, in many a decorated yard and blushing orchard, the rich and blooming monuments of his industry and taste. Nothing contributes so much to the beauty and attractions of the village-yard or cultivated farm, as well-selected ornamental trees in the one, and the extensive orchards of the finest fruit-trees in the other. Art, with all its power to charm, may embellish, but it cannot supply so great a source of abundant enjoyment. Chicago American.

American Vine.—The expedition to the Rocky mountains found on the borders of the Arkansas near the eastern side of the great desert, hundreds of acres of the same kind of vine which produce the wines of Europe.—The vines were growing in a wild state and were surrounded with hillocks of sand, rising to within 12 or 18 inches of the end of the branches. They were loaded with the most delicious grapes, and the clusters were so closely arranged as to conceal every part of the stem. These hillocks of sand are produced by the agency of the vines, arresting the sand as it is borne along by the wind.

Iron Mountain in Missouri.—Mr. Featherstonhaugh, the geologist appointed by government, reports the discovery of a vein of iron on the United States' lands in Missouri, about one hundred and fifty feet above the surface of the adjacent plain. At the surface, it had the appearance of being roughly paved with black pebbles of iron, from one to twenty pounds' weight; beneath the surface it appeared to be a solid mass. He remarks:—"Unusual as is the magnitude of the superficial cubick contents of this vein, yet it must be insignificant to the subterraneous quantity. This extraordinary phenomenon filled me with admiration. Here was a single locality of iron offering all the resources of Sweden, and of which it was impossible to estimate the value by any other terms than those adequate to all a nation's wants."

[For the Family Magazine.]

LITERARY REVIEW.

The History and Topography of the United States of North America, from the earliest period to the present time: edited by JOHN HOWARD HINTON, A. M. A new and improved edition, with additions and corrections, by SAMUEL L. KNAPP. Illustrated with numerous engravings. 2 vols., 4to. *Boston, S. Walker.*

THE European edition of Hinton's work on the United States has been some three years before the publick; the present revised and augmented copy has but recently appeared. The American publisher could scarcely have selected a more valuable and opportune book for the American people, enriched as the edition now before us is with a large body of new and interesting materials, the results of ample study and observation on the part of the excellent editor. When we state that the historical department is brought down to the time of the administration of President Jackson, and that the topographical and other matters, now first imbodied, have been derived from the latest authors on the natural history and statisticks of our country, and that, in respect to quantity, the American edition contains nearly double the amount of information embraced in the original of Mr. Hinton, while the original text remains unaltered, we discharge but a duty imposed on us in assuming the office of criticism.

The better to appreciate the services rendered to Mr. Hinton's popular work by the labours of the American editor, we must take a hasty glance at the materials which he had at command, as well as consider those of his own more immediate elaboration. Fortunately many of the individual states already justly boast of their respective historians; and though some of these are by no means entitled to a high consideration, they nevertheless have so far been available as to secure for better preservation interesting documents and acknowledged facts of peculiar value. Maine has already three writers who have appropriated some talent and research towards her history, and Sullivan's work may be fairly ranked among the foremost of them. Dr. Belknap's New Hampshire is indubitable authority on that state. We have Hutchinson and Minot on Massachusetts; Vermont boasts the valuable efforts of Williams; Connecticut acknowledges her obligations to Trumbull; while the historian of New York, the late Chief-Justice Smith, by his long-published history, with its continuation, still more recently printed, and which brings down the history of the state to the administration of Lieutenant-Governour Colden in 1762, is admitted to be the only standard of historical facts yet set forth concerning this potent and important section of the American confederacy.* Besides Smith's work, long well known, New York has been essentially aided by Colden's "History of the Five Nations," and by Moulton's antiquarian researches. New Jersey may boast of Smith and Gordon. Proud and Gordon have given us substantial materials for Pennsylvania, and Gordon in particular is valuable for much recent information Maryland presents us with Bozman; and very recently we are informed that many documents of singular value, having regard to the early history of this state, have been discovered. North Carolina possesses the history of Williamson, and the recent production of Jones. Kentucky has been partly illustrated by Drake; South Carolina by Drayton; Georgia by M'Call; Virginia by Steth, Smith and Burk, Louisiana by Martin; while, on the subject of the West and the Valley of the Mississippi, the works of Flint may be regarded as excellent authority.

Of a different order, and of vast value, is Doctor Holmes' "American Annals." Other books of the same character, and equally valuable, might be noticed. Besides which, historical societies are springing up in several of the states: that of Massachusetts, the parent, has discharged her duty by the publication of some twenty-four volumes, enriched with durable materials, and is still marching onward in her praiseworthy efforts; the society of New York, besides the publication of Smith's entire history, has printed three volumes of collections; the Rhode Island Historical Society, a new organization, has just favoured the publick with her third volume of collections, to the no small gratification of the disciples of Roger Williams; the Pennsylvania Historical Society has also been not unmindful of its important trust. Still more recently, we have become acquainted with the formation of an historical society in the district of Columbia; while the historical societies of Virginia, and some others of the southern states, possess many invaluable documents. We are therefore in a fair way for providing for the future wants of the American historian, in the best possible manner that can be devised.

We have thus purposely confined ourselves to a hasty notice of the prominent historical materials now pretty generally diffused and of easy access. Our physical history is also awakening a corresponding degree of attention; and a formidable list of names might be here inserted in demonstration of the gratifying truth, that some of the best minds of the country are appropriated to the exposition of our natural and inherent resources as a nation

But it is time to turn to the volumes before us. Colonel Knapp does not pretend to examine, *in extenso*, this enlarged field of research: his prescribed limits forbid such an undertaking. He has, it would appear, done all that could be practicable with such materials and for such a work as that now before us.

"In order the better to dispose of my materials," says he, "I have looked with a becoming regard to the statisticks and other information which the author has given of the several states, and under different heads. But few portions of his account of the country have been examined without some additions or amendments; and if a disproportion present itself, concerning the manner in which some parts have been augmented, I must plead, that sometimes my materials led me to the measure, and that I felt that special subjects required the revision and enlargement that I have thus bestowed. Moreover, Mr. Hinton himself has not always been governed by the relative value of his subjects, and different observers are supposed to look even on the same object with different eyes. I have also had several

* The Historical Society of New York, by having rescued this continuation of Smith's history from oblivion, have performed a service which entitles them to the kindest consideration of all who desire the national history of the American people to possess its true value. There can be no doubt of the authenticity of this volume. It was favoured the society by the surviving brother of the historian, Justice Smith, of Canada; and the committee under whose direction it has been brought to light, (Dr. John W. Francis, John Delafield, and Dr. David Hosack were selected for that purpose,) we have every reason to believe faithfully discharged their trust.

other difficulties to overcome. Almost every individual state of the confederacy now lays claim to its topographer and historian. Maine, for instance, has already called forth several topographical works; and no less than three authors, each of considerable merit, have published her historical occurrences. In such a case, the few pages of Hinton, on this member of the Union, might have swelled to as many hundred; but a reference to authorities is nearly all that the prescribed limits allowed.

"The state of New York, in the original edition, occupies no inconsiderable space in the work. I have, however, still further largely added to it, because the empire state demanded it. Her mighty efforts in internal improvements, her commercial enterprise, her location, and other reasons, had their weight in my determination. The reader therefore will not be dissatisfied by finding in this edition the elaborate report of the late Cadwallader D. Colden on the canal history of this great state; it is too precious a document not to be preserved in a way that it can readily be had access to.

"I have, with a similar view to future benefit, enriched my pages with a minute and circumstantial account of the city of New York, furnished me by my friend Dr. John W. Francis, who has also afforded me other communications of value, and occasionally directed my attention to objects of special inquiry throughout the work. His ample library of American materials has also yielded to me many facilities. To him and to my other friends, who have felt solicitous that 'Hinton's United States' should be rendered the more valuable by the labours of the American editor, and to all who have contributed to this object, I beg to return my thanks."

The first of these volumes is chiefly historical; and the acknowledged attainments of the editor on this particular subject have enabled him to give a richness to the original work that greatly enhances its value. The occurrences associated with the Indian princess Pocahontas; the trials and vicissitudes of the early colonists of the eastern states, Captain Carver and the Puritan adventurers; the ancestry of the New Englanders; the persecutions of the Quakers; Roger Williams; the settlement of New Netherlands; the French and Indian wars of 1756–63; the momentous events of the earlier period of the American revolution, with biographical sketches of some of its most prominent actors; the history of the American navy from 1794; the progress of the arts in the United States; the inaugural addresses of the respective presidents, including that of the immediate incumbent; these and other matters will be found now, for the first time, brought within the pages of Mr. Hinton's first volume.

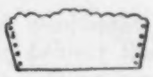
The second volume relates to the physical geography of the United States; its natural history; statisticks; the state of society, and topography. The work terminates with a curious chapter on meteorology furnished the editor by Dr. Samuel Metcalfe.

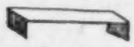
Our readers must be left to their own conclusions as to the fidelity with which this edition is executed: for ourselves, we are satisfied. The engravings are appropriate, and do credit to the respective designers and artists. In short, the work deserves to be extensively circulated; and we can safely recommend it to the publick as eminently worthy of liberal patronage.

LADIES' DEPARTMENT.

TO MAKE CARD-RACKS.

THERE are many sorts of card-racks, but principally two: those which are made to hang up against a wall, and those which stand upon a block. To make the former you first determine upon a design for the outline, cut out a piece of stout card-board rather larger than the form for the back, and another piece for the front, then prepare the ornamental work for the front of each: whether scorched paper ornamented with gold flowers, like the hand-screens, mentioned in a former number, or drawing-paper with drawings or paintings, and paste them together, and also the paper for the linings. Let them be put in a press until dry, as in doing the screens, and then cut them out into the proper form with chisels, and when pieces of card are to be fixed to the back form, for the purpose of holding notes or cards, they may be cut out and pasted at a little distance from the bottom, about an inch; and placed in their right situation. Let them again be put into a press to become flat and hard, after which they may be joined together, either by tying them with ribands or connecting them with a piece of card-board. If the former, cut out some holes at equal distances from each other both in back and front, the same number to each, then determine the distance you intend the front to project from the back, and cut out two strong pieces of card-board to an inch more than that length, and about half an inch in width, double down half an inch at each end to the form of the accompanying figure; now join the front and back of the card-rack close together with a strip of gold, coloured or white paper gummed on, and put the two pieces of card at the top of the front to make it set firm and in good form, gumming them to make them stick fast to both back and front; when this is dry the riband may be laced in through the holes, and if a bow be added to each corner it will give a pleasing finish to the whole. If the back and front are to be connected by a piece of card-board, a stout piece may be marked to the proper form, and it may



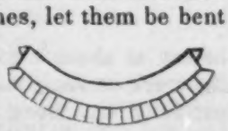


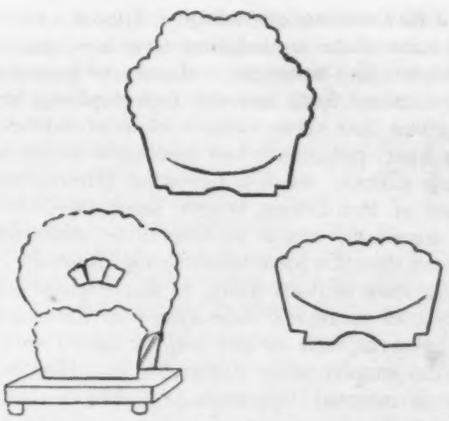
be cut at about a quarter of an inch distance from the mark on each side: it should then be carefully cut along the lines *a a* so as to penetrate one half the card; then cut away half the thickness of these strips at the side, so that when bent they may not project beyond the edge of the middle piece; the two sides may then be gummed to the back and front of the card-rack on each

side, and when dry will be found sufficiently firm for use.

Sometimes card-racks appear to be bent at the bottom, and are not joined like those just mentioned; these are made entirely of one piece of Bristol-board cut to the proper form, and then merely bent and connected at the sides with riband as before; and a few gold or embossed ornaments added to finish them. Mark out the pattern upon some Bristol-board, not very thick, bind it with gold round the edge, cut out the holes for the riband, fix on the gold ornaments, and then bend it across and lace it with the riband, add the riband for the handle, and it is done.

Sometimes card-racks are made to stand on a shelf instead of being suspended by ribands; for these we must procure two pieces of wood, from a cabinet-maker, of about six inches in length, two inches in breadth, and nearly half an inch in thickness; having two divisions sawn halfway through the thickness, at the distance of a quarter of an inch from each side, and of the width of the card-board of which the back and front are made; these are to be covered with coloured paper and a brass ball screwed into each of the four corners. Cut out a piece of paper large enough for the sides to fold over each other when bent round the wood, let it be pasted over twice and made to meet on the side where there are no divisions, doubling it in neatly at the ends, so that it may fold over without appearing thick and awkward. With a bradawl, not quite so thick as the screw of the brass balls, make a hole at each corner and screw in the balls: this completes the stand. We will now mention how to connect the back and front, which are made as before, with this difference only, a space of card-board equal to the depth of the divisions in the stands must be left to the bottom of both. The card which is used to join the back and front may be either of a curved or angular form. Mark upon some stiff card the width of the space between the two divisions on the stands, and of about six inches in length, and cut it out at the distance of a quarter of an inch on each side; cut along these lines so as to penetrate half way through the card and then divide the strip into small notches, let them be bent towards the outside and the whole card to the proper curve. Mark upon the back and front of the card-rack a line of the form into which the connecting piece is to be bent; then, with glue or gum, fasten one side on to the front of the card-rack first, and when that is dry, fasten it on the back, placing something heavy to keep them firmly together. They may





afterward be inserted into the openings on the stands, and made firm either with gum or glue. Sometimes a strip of gold paper is put on to the front of the stand to give it a finished effect.

PARTICULAR EXERCISES.

OF THE KINDS OF EXERCISE.

THE exercises called active, are those in which the body is moved and agitated by its own force, with or without the particular influence and direction of the organs of sense; they always produce a general excitement more or less powerful.

The class called passive, or communicated exercises, are those in which the body is acted upon and moved by a cause distinct from muscular action, or without the muscles assisting in any other way than by a contraction merely sufficient to preserve a fixed position. These exercises merely produce a succession of impulses in the living parts, calculated to brace and strengthen them without exciting.

Mixed exercises, such as riding on horseback, produce each of these results.

PASSIVE EXERCISES.

THESE, indeed, are not properly exercises, because the body is moved in them without effort; but as they are often employed as an introduction to active exercises, it would have been improper to omit a sort of preliminary notice of them. Passive exercises have a remarkable effect upon nutrition: they increase the strength and vigour without much excitement of the organs, raising no beatings of the heart, nor overheating, nor, generally speaking, producing perspiration. Without inquiring by what means nutrition is, under their influence, performed with energy, and rendered more general, it may be observed that, thereby, the organs of which the body is composed, appear to experience, throughout their substance, a number of vibrations which may exercise the fibres, augment their density, and render them stronger.

While in active exercises, nutrition is distributed so that the more certain parts are exercised, the more preponderance they acquire, in relation to others which lose power in the same proportion; in passive exercises, on the contrary, distribution and nutrition exist in the most perfect equality.

Friction with the hand and with the flesh-brush, shampooing, &c., may be ranked with passive exer-

cises. In the *swing*, if a second person gives the impulse, the exercise is purely passive; but if the person swinging assist in the action, or perform it alone, it has, in the same proportion, the effects of active exercise. This exercise, however, is dangerous, unless used with discretion: great care should be taken that the ropes are strong and well secured, and the seat fastened firmly. *Suspended couches* form an exercise similar to swinging; the only difference being that the person exercised reclines, instead of sitting upright, and that the curve described in the motion is considerably less. This exercise is more especially useful in alleviating pain and in producing sleep. *See-saw* furnishes a succession of movements which are more powerful than the preceding. As it consists in balancing a plank, the centre of which rests upon a solid axis, one person being seated at each end, and one rising as the other descends, this exercise is not exactly passive; each party takes an active part, either to keep herself on, or to rise, by impelling the extremity of the lever when it strikes the ground. *Sailing*, considered only as a *movement* communicated, has not so great an effect upon the functions as carriage exercise. The sailor experiences a succession of balancings, rather than shocks. It nevertheless presents physical agents which produce a remarkable change in the constitution of sailors. These appear to be:—First. The sea-breeze, which, in the same degree of latitude, is much cooler than that of the land. Secondly. The greater purity of the air at sea than on land. Although the ocean is inhabited by an immense number of living beings, the decomposition of their bodies does not appear to produce any putridity in the water, and they consequently produce none in the atmosphere which rests on its surface. Thirdly. The temperature of the surface of the sea, which is more uniform and less changeable than that on shore. The land, in some places, by means of its mountains and valleys, seems to concentrate and preserve immense quantities of solar heat, to which other places are by their position inaccessible. This cannot be the case at sea, where nothing interferes with the free course of calorick.

Carriage exercise produces greater motions, because the flooring upon which the feet rest necessarily receives the jolts and shocks which the wheels cause, owing to the roughness of the ground, and transmits them to the person within. If the ground be very uneven, and the speed very great, the shocks may be so continual and violent, as to render this exercise insupportable and injurious to very weak constitutions. If the rate be slower and easily endured, it is evident that it may, in some cases, have benefical effects upon the organs. The refinement in building carriages, however, is carried so far that not only do the shocks received by the wheels no longer transmit any percussive motion to our organs, but even the most easy balancings scarcely reach us. This mode of exercise in a carriage cannot consequently be of great utility in re-establishing a constitution enervated by luxury or study. It is calculated only to increase what is termed nervous susceptibility, to put us out of a condition to resist the most trifling collision, and to render us still more attentive to all the slight shades of disagreeable sensation. The transmission of shocks being in indirect ratio to the elasticity of the springs, and direct to the tension of the braces, carriages of this kind, in which the springs are the least elastick, and the braces as tight as possible, appear to be the most suitable; for if, on one side, the line of motion should be sufficiently broken to avoid the rough shocks that a cart produces, on the other, it should not be sufficiently broken to annul the shocks which constitute precisely the advantages of this kind of exercise. As carriage exercise gives more vigour to the organs, without adding to the activity of their functions, facilitates assimilation, without occasioning loss, and enjoys, in a very high degree, the advantages peculiar to passive exercises, it is, when necessary, suited to all ages, particularly to the two extremes of life, and is very favourable to the re-establishment of convalescents who cannot yet take any active exercise.

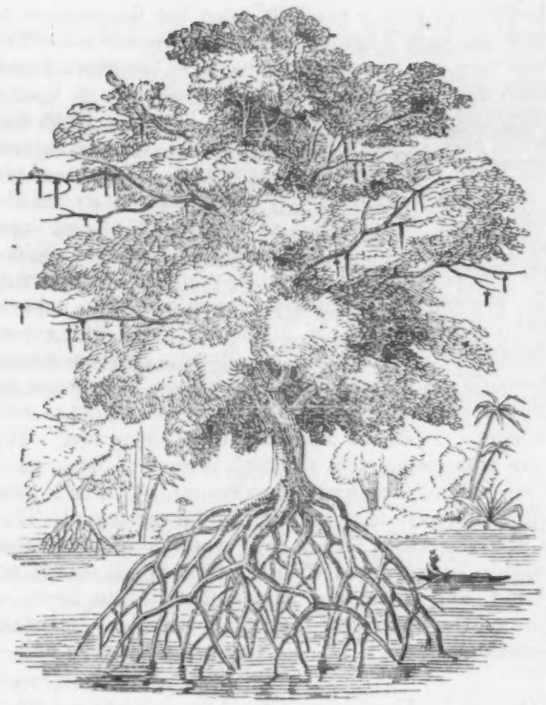
MIXED EXERCISES.

Mixed exercises are composed of two orders of movement: the first is communicated to the individual by a foreign power; the second has its principle in the individual himself, and is not generally executed except to regulate the first. The effects of these exercises are of course the same as the effects of passive exercises joined to active ones. Riding furnishes as example of what has just been stated. In riding, the shock of the horse's feet upon the ground produces in the animal's body a percussive action, which shakes the rider. He undergoes a succession of lively shocks, of which the action is very extensive, if the horse be trotting, cantering, or galloping. If, on the contrary, the horse is walking slowly, the effects are very trifling. Equitation is recommended to ladies in too general a manner, and is proper for them only under particular circumstances. When the health is not impaired, this exercise has many disadvantages, in the twist it gives the body, the raising of the shoulder, the enlargement of the size of the waist, by the exercise of its muscles in maintaining the balance—the deforming of the limbs—the rendering the voice coarse—the injury of the complexion—the unnatural consolidation of the bones of the lower part of the body—the improper irritation and subsequent debility it produces—the masculine air it bestows, &c., &c.

Roussel justly remarks, that ladies never derive, from riding, the same advantages as men; for being compelled to indulge in it with precaution, they seem, in mounting on horseback, to lose those graces which are natural to them, without gaining those of the sex which they endeavour to imitate.

The Swamp Snowball—[*Hydrangea Quercifolia.*] This plant is found on the broken sandy banks bordering small water-courses, and is abundant in such situations in the uplands of Louisiana. It seldom grows beyond the size of a bush. The blossoms are lasting, and although without odour, are pleasing to the eye, on account of their pure white colour when first expanded: they dry on the stalks, retaining their form, and remaining until winter.—The species is characterized by its oblong, deeply-sinuated leaves, which are downy beneath, and its radiated loosely-thysiform cymes.

AMERICAN TREES.



[The Mangrove-Tree.]

These trees are frequent in the southern states, although they are not seen in such perfection as in the West and East Indies, where they are found forty or fifty feet high. They grow only in water and on the banks of rivers, and preserve the verdure of their leaves throughout the year. From the lowest branches issue long roots which hang down to the water and penetrate into the earth. In this position they resemble so many arcades, from five to ten feet high, which serve to support the body of the tree, and even to advance it daily into the bed of the water. These arcades are so closely intertwisted one with another, that they form a kind of natural and transparent terrace raised over the water so firmly, that one might walk upon them, if the branches were not too much encumbered with leaves. The most natural way of propagating these trees is to suffer the several slender small filaments which issue from the main branches to take root in the earth. The most common method, however, is that of laying the small lower branches in baskets of mould or earth till they have taken root. The wood of the mangrove-tree is hard, pliant and heavy. It is frequently used for fuel, for which purpose it is said to be remarkably good. The fires made from it being clearer and more durable than from any other material; were it not for the enormous weight of the wood, it might be commodiously employed in almost all kinds of work, as it possesses every property of good timber. To the root and branches of the mangrove oysters frequently attach themselves, so that wherever this curious plant is found growing on the seashore, oyster-fishing is very easy, and in such cases these shell-fish may be literally said to be gathered from the trees.

There is a pleasure in weeping over afflictions for which none have ever wept before.

REVOLUTIONARY ANECDOTES.

We have gleaned from the publications of the day, the following anecdotes of the revolution. The first relates to the battle of Bunker's Hill—and is from the pen of A. E. Everett, Esq.:—

"The veteran Pomeroy, to whom I have already particularly adverted, and who at this time held no commission in the line, when he heard the pealing artillery, felt it as a summons to action, and could not resist the inclination to repair to the field. He accordingly requested Gen. Ward to lend him a horse, and taking his musket, set off at full speed for Charlestown. On reaching the neck, and finding it enfiladed by a hot and heavy fire of round, bar and chain shot from the British batteries, he began to be alarmed—not, fellow-citizens, as you might well suppose, for his own safety, but for that of Gen. Ward's horse! Horses, fellow-citizens, as I have already remarked, were at this time almost as rare and pernicious as the noble animals that rode them. Too honest to expose his borrowed horse to the 'pelting of this pitiless storm,' and to dream for a moment of shrinking from it himself, the conquerer of Baron Dieskieu dismounted, and delivering Gen. Ward's horse to a sentry, shouldered his musket and marched very coolly on foot across the neck. On reaching the hill, he took his place at the rail-fence. His person was known to the soldiers, and the name of Pomeroy rang with enthusiastick shouts along the line!"

It was during the last war, when the vessels of Admiral Gordon were making their way up the Potomack, that a negro-woman was arraigned in a court of Virginia for killing one of her own sex and colour; she had been committed for murder, but the evidence went clearly to establish the deed to be manslaughter, inasmuch as it was done in sudden heat, and without malice-aforethought. The attorney for the commonwealth waived the prosecution for murder, but quoted British authorities to show that she might be convicted of manslaughter, though committed for murder. The counsel for the accused rose, and in a most solemn manner asked the court if it was a thing ever heard of, that an individual, accused of one crime and acquitted, should be arraigned immediately for another, under the same prosecution? At intervals—boom, boom, boom, went the British cannon—"British authorities!" exclaimed the counsel; "British authorities, gentlemen! Is there any one upon the bench so dead to the feelings of patriotism, as at such a moment to listen to British authorities, when the "British cannon is shaking the very walls of your courthouse to their foundation." This appeal was too cogent to be resisted? Up jumped one of the justices, and protested that "it was not to be borne; let the prisoner go: away with your British authorities!" The counsel for the accused rubbed his hands and winked at the attorney; the attorney stood aghast; his astonishment was too great for utterance, and the negress was halfway home, before he recovered from his amazement.

They who are most impetuous in the pursuit of happiness, usually meet with the severest disappointments. Happiness enters most freely into the mind which is the most tranquil in its desires.

USEFUL KNOWLEDGE.

New Method of Blanching Celery.—In the March number of the *Irish Farmer's and Gardener's Magazine*, a Mr. Coglan recommends the following method of cultivating celery, by which he states he has been successful for many years in preserving this favourite vegetable from what is called "rust," occasioned by the attack of grubs. In the month of October, he plants the ground, designed for celery the ensuing year, with early York cabbage, which will be cleared away by the first week in June, the most proper season for planting. Previous to forming the drills, he collects the stalks and remaining leaves of the cabbage, and places them in small heaps on the bed. After lying a day or two, they will be found to have collected a great number of slugs and other vermin, which may be easily destroyed. The ground is then prepared and the plants put in; when ready for blanching, the loose leaves of each plant are tied up, and strong wheaten straw laid full length along the side of the drills, and staked down so much that it will completely exclude the light, excepting at the top, which is all that is requisite. By this treatment, he says, in the course of a month he has gathered celery perfectly free from either rust, grub, or insect.

Management of Fruit-trees.—A valuable discovery in the management of fruit-trees has been made by M. Crozier, nurseryman, of Newcastle-upon-Tyne. The object is to obtain new wood where it may be wanted, and for this purpose he makes a nick above the eye where it is wished to produce new shoots; and after many trials, M. Crozier has found the experiment completely successful. In the garden of Mr. Carr, at the Barras Bridge, near Newcastle, there is a pear-tree which has sixteen shoots produced by the above means this season. It has been applied with equal success to apple, pear, and plum trees, and to the cherry to a certain extent.

To preserve Corn for boiling.—Pluck the corn when fit for eating, strip down the husk so as to remove the silk, and then replace it—pack it away in a barrel, and pour on a strong pickle, such as used for meat, with a weight to keep it down, and you will have a good sea-stock: parboiled and then boiled will make it perfectly as fresh and sweet as when taken from the stalk.

Culture of Bees.—Mr. Begbie, gardener, Torry, purchased a hive (a second cast) last year, and which, towards the approach of winter, showed that the "store" was far from "complete," and quite inadequate to their wants during that season. He determined to try a novel expedient; and, in November last, buried the hive in the earth three feet below the surface, covering it carefully with straw, and placing a flag above, and then earth on the top. In April, it was dug up and found to be in good condition, contrary to all expectation; and to crown the whole, this hive threw a capital swarm in June last, as a grateful testimony of the snug quarters enjoyed during winter.

Preserving Eggs.—In the months of May and June, farmers and others should take care to provide themselves with a stock of eggs for the season, as eggs are both cheaper and better in these months, than they are in any other season of the year. Good, fresh eggs, properly prepared, will keep at least a year, and have been kept much longer. Eggs dipped in varnish, have been sent from India to England, and were hatched after their arrival. The great object seems to be the total exclusion of air, and the consequent evaporation of the fluids of the egg. Packed in salt, eggs will sometimes keep well, the low temperature acting favourably, yet the air is not generally sufficiently excluded—the yolk is apt to settle to the side of the shell, and the egg of course, becomes worthless. Putting down in water, thoroughly saturated with quick lime, is now generally adopted, and is found to be the cheapest as well as surest mode of keeping them uninjured. We have sometimes seen so much lime used as to pack close around the lower courses of eggs, and from which they could with difficulty be extricated. This is not necessary: that the water should be thoroughly impregnated with the lime is all that is required, and to secure this object, a thin layer of lime on the bottom of the vessel may be admissible—nothing more.

Cement for Hard-stone, Porcelain, and Glass.—This cement is a natural product, which, without being abundant, is in sufficient quantities for all ordinary uses. The large snails, which are found in gardens and woods, and are sometimes used for food, have a vesicle at the extremity of their bodies, filled with a whitish substance, having a greasy and gelatinous appearance. If it be applied between two surfaces, whatever be their hardiness and and compactness, and the surfaces be brought together throughout, so strong an adhesion is ultimately occasioned, that if violent blows or thrusts be given to the substances, they frequently break elsewhere, than at the juncture. A flint about the size of a peach, having been broken in two pieces and rejoined by these means, being thrown with violence on the pavement, broke into fragments by fresh fractures, crossing the former junction, but not going along with it. All that is necessary to give this cement its full power, is to allow it time to dry.

Painting Houses.—Spirits of turpentine in paint is injurious. Painters think that it causes the paint to dry; but the fact is, the oil is decomposed by it, and the preservative effect is destroyed. In proof of this, it is stated that nothing will remove grease or oil spots quicker than spirits of turpentine. The oil of sunflower-seed, is said to be equal if not superiour to that of flax-seed. This plant should be more cultivated than it is, for its oil.

To remove grease and oil spots from silk and other articles.—Put a small portion of the yolk of an egg on the spot of grease, then put over the egg a piece of white linen; wet the linen in boiling water, and keep rubbing it with the hand. This process repeated three or four times, will, in almost all cases, remove the grease

PHYSICAL GEOGRAPHY.

Some of the Opinions regarding the Formation of the Globe.

[Abridged from Malte Brun.]

Almost all geological opinions may be reduced to two great classes; the opinions held by the Vulcanists, and those entertained by the Neptunists.

The Vulcanists tell us, that the earth, at first, was in a state of igneus fusion; that it then gradually cooled, and was covered with water only at a subsequent period. Air and calorick, or fire, were the powers which gave to it its existing shape. The land was heaved up by an internal force; the irregularities which diversify its surface are the effects of volcanick eruptions; and the transported soils have been formed by the disintegration of the higher grounds.

According to the Neptunists, the earth was originally in a state of aqueous and cold solution, at least to a certain depth. Solid bodies were formed by desiccation, precipitation, crystallization, &c. The primitive ocean has retired, or rather has disappeared. Strata have been overturned, in consequence of the land giving way and sinking down from its own weight; the tertiary soils have been formed in the bosom of the waters.

These ideas, more or less extended, varied, and combined, constitute the basis of all the theories of the earth which the industry of Delamethire has been able to collect.

The Egyptians, the Hebrews, and the Chaldeans, appear to have adopted the Neptunian system. The Chaldeans, however, believed in the existence of a central fluid similar to the atmosphere, and considered the globe as having been twice covered with water—first by the chaotick waters, and then by a universal deluge. This deluge, according to the Chaldeans, was the effect of a change in the axis, of the globe, occasioned by an irregular attraction of the superiour planets.

The most ancient writings of the Hebrews, attributed to their lawgiver Moses, have also preserved a most interesting tradition, the vestiges of which are plainly to be traced among many other nations, namely, that of six geogonical epochs, or a successive formation of the globe. These epochs are spoken of by the Hebrews, as days; by the Etruscans, as a thousand years; by the Indians as a million years. The word days is supposed to be used in a figurative sense, for some indefinite period of time.

Belus, the Assyrian lawgiver, appears to have admitted that the earth exists periodically in a state of universal combustion, and in that of general inundation. According to Trogus Pompeius, the two systems which attribute the origin of the world to fire and to water, divided the opinions of the philosophers of the East. Those who adopted the former, thought that the earth had slowly and successively cooled, from the poles to the equator; their antagonists maintained, that the sea had gradually retired. Homer, Lucretius, Virgil, and Ovid seem to have adopted the Neptunian theory.

Democritus and Epicurus ascribe the creation to the concourse of particles or atoms scattered in the immensity of space. The Greeks had a variety of systems.

Among the moderns, Palissy was the first to unfold correct ideas respecting fossil-shells. Stenon improved upon Palissy.

Burnet, a man of great talents, but who had not carefully observed phenomena, says that before the deluge, the surface of the earth was a level plain, with neither mountains nor valleys. All substances were disposed around the centre of the globe, according to their specifick gravity, water every where occupying the surface. The oily substances, however, being lighter than water, formed by degrees an upper layer, which enveloped the waters and the whole of the globe. Upon this extremely fertile crust, the antediluvian generations lived in perpetual spring. The deluge made every thing change its appearance; the crust became dry, and the accumulated waters struggled against this light covering; it burst and sunk into the abyss of waters. This changed the axis of the globe, and consequently the temperature of its climates. The raised edges of the broken crust formed our present mountains.

Descartes and Leibnitz take a still bolder flight, imagining that the earth is a small sun, covered with an opaque crust, which, by sinking down, gave birth to the mountains. Leibnitz considered the whole mass of the globe as having been vitrified.

Whiston considered the earth as a comet, which had forsaken its original track, to revolve in the orbit of a planet. Being no longer subject to the extremes of heat and cold, the chaotick matter of this ex-comet was precipitated according to the laws of specifick gravity. A part of the primitive heat of the comet was preserved in its centre; this centre was surrounded by water, the exteriour crust of the globe was of uncommon fertility, and the inhabitants lived for centuries. But the excessive warmth had the effect of inflaming their blood; they became so impious, that the Creator was compelled to destroy them with a flood. For this purpose, he caused another comet to approach, which enveloped the earth in its immense tail; and, as the tail of a comet is composed of vapours and water, (?) the temperature of the earth was considerably diminished. Besides, the attraction of the comet disturbed the equilibrium of the waters in the interiour, and thus occasioned a violent flux and reflux in their mass. The exteriour crust of the earth being violently shaken, sunk down in one place, and cracked in another. In this way, a universal deluge took place. The comet, after executing the will of the Creator, receded; the waters, recovering their equilibrium, entered again into the subterraneous cavities, which had been sufficiently enlarged to receive the waters of the comet. The coldness, and other bad qualities of these waters, have reduced the earth to that degree of barrenness and exhaustion which we now so much deplore.

Woodward, a countryman of Whiston's, and an indefatigable and scrupulous observer, admits, that all terrestrial substances have been in a state of aqueous fluidity, and supposes that the whole interiour of the globe contains an abyss of water which must have been sufficient for the purpose. The deluge of Moses consisted in a falling down of the crust of the globe into this great abyss, the waters of which, according to Woodward, possessed a peculiar dissolving power, which did not act upon shells and other remains of the animal kingdom.

Tournefort supposed that stones were the products of vegetation! The ingenious Fontenelle was the first who had the merit to assert that more revolutions than one must have contributed to model the surface of the globe, and to heap up those vast ruins which surround us on all sides.

Ray imagined, that at the very moment of the creation, at the time of the separation of the humid and solid substances, there were earthquakes which heaved up the mountains. Hook, Moro, and Raspe admit a similar idea.

According to Buffon, the suns and comets were formed as we see them, and projected with an impetus sufficient to carry them forward in their orbits. But about 96,000 years ago a comet fell obliquely into the sun, and detached from it the 650th part. This entire mass, hurled into the immensity of space, separated into fragments, which formed the several planets of our solar system, and which from their rotatory motion, acquired a spheroidal shape. Our globe was in a state of incandescence, but its surface by degrees cooled and consolidated, retaining however, many immense cavities. Part of the vapours, which were elevated in the atmosphere, condensed and formed the seas. These waters, acting upon the solid part of the globe, decomposed a portion of it and in this way formed all the earths and stones. The waters of the ocean, attracted towards the equator by the tides, carried with them a vast quantity of dissolved substances; "and this," says Buffon, "gave rise to those great chains of mountains, which extend from east to west." Unfortunately these chains do not exist. The primitive waters withdrew into the cavities of which we have spoken, and then the continents appeared. The earth, in space of 43,000 years, grew so much cooled that its surface could admit of the existence of vegetables and animals, which started first into being about the pole, and gradually spread themselves towards the equatorial regions. The secondary strata were formed from the decomposition of vetrified substances, mixed with marine sediment; accessory causes, such as winds, currents of water, volcanick eruptions, and earthquakes, afterwards modelled the mountains, and the valleys. The ocean slowly changes its shores by its general motion acting against the eastern coast, which it gradually destroys, and in this manner may have several times completed the tour of the globe.

The theory of Deluc has been warmly supported. This philosopher supposes that the earth, and all the celestial bodies, were masses of confused elements, in which the Divine will, by communicating to them a certain quantity of light, produced chymical precipitations, whence was formed that crust of solid rocks whose fragments we see around us. This consolidated crust sunk down several times; such of its edges, as were supported on the partitions of subterraneous caverns, formed the mountains. The waters which at first covered the whole globe, filtered down into the central parts, where the ancient chaos always subsisted; then appeared the first continents of greater extent than ours, but suspended above immense caverns; and, before they were enlightened by the sun, producing vegetables of a nature different from ours; the remains of which form our coal-mines. The present continents, continents concealed under the sea, were covered with deposites of shells; volcanick eruptions spread there their beds of lava. By a general and final subsiding, the primitive continents sunk into the recesses of the subterraneous cavities. The sea was precipitated upon the land, and ingulfed the whole race of its inhabitants. This catastrophe was the *universal deluge*, described by Moses, traces of which are to be found among the traditions of almost all nations. It was then that our present continents formed beneath the ocean, suddenly arose into view. In the light soils of these continents were found, buried in promiscuous heaps, the remains of quadrupeds once the inhabitants of islands which had sunk down before the universal deluge, and the skeletons of cetaceous animals which had peopled the sea. The preservation of these remains, which are still met with almost entire in cold countries, and the inconsiderable thickness of the beds of vegetable mould formed above our continents, unite to prove that their antiquity, or rather their appearance above the waters, is not to be dated many ages beyond our own.

Hutton and Playfair believed in a great internal heat. Franklin, supposed that not only all terrestrial substances, but even all matter, had existed as an elastick aeriform gas, irregularly diffused throughout the celestial spaces. Gravitation began to be felt: the gaseous particles were attracted towards various centres, and formed globes of air. All substances are capable of being reduced to the aeriform state; therefore, concluded Franklin, they may all have been produced from the condensation of air, and thus must have been formed the exteriour crust of the globe, which in this system is merely a thin solid covering around a vast elastick fluid. The movements of this *central* air occasion earthquakes. This hypothesis is quite as rational and ingenious as most others.

CULTURE OF THE STRAWBERRY.

After so much has been said and done to induce farmers to devote a small portion of their land and labour to the purposes of horticulture, it is astonishing they should be willing to deny their families the luxuries which a garden and fruit-yard furnish, and be content to set down to a meal of "pot-luck," at least three hundred and sixty-five times in the year. If a farmer would be a "good liver," his farm and garden must furnish his wife with the "wherewith," or he must not complain if she sets a poor dinner before him. If he loves cherry-puddings, he must set out cherry-trees before finding fault with his wife for not making them—if he is fond of quince, currant, or gooseberry preserves, his wife will be delighted to put them on the table, but it is to be hoped he will be good-natured, if she does not, if there is nothing but pig-weeds and potato-tops in the garden from which she can gather them.

Among the numerous kinds of fruits which are indispensable to good living is the strawberry. Besides being a most delicious desert fruit it is considered by medical men a valuable medicine in several diseases; particularly putrid fevers and pulmonary consumptions. A free use of strawberries, it is said, will both prevent and cure the rheumatism. Every farmer's wife ought to consider her dinner-table incompletely furnished for at least four weeks in the

heat of summer, unless it has upon it a desert of strawberries and cream. She ought also to consider her tea-table deficient unless strawberry-jam is among her preserves and sweetmeats, and who does not love an occasional bowl of strawberries and milk?

But while we insist that every farmer's wife should furnish her table with delicious fruit, we would not compel her daughters "to go a strawberrying" in the oldfashioned way their grandmothers did—even were they so extravagantly fond of strawberries as to ramble about the fields, with their sun-bonnets on their heads, and strawberry-baskets in their hands in pursuit of them. If farmers would have strawberries, they must devote a small portion of their gardens to their cultivation. There are several varieties of excellent flavour, and by a judicious selection, and a little labour, a full supply may be had through the season. The ordinary method of cultivation is to prepare ground, by manuring and spading, and transplant in August. The distances between the rows generally from eighteen inches to two feet, between the plants from nine to fifteen inches, according to the varieties. The runners the first year are cut off just before they take root. Some cultivators cut off the leaves in autumn. The second year the runners are permitted to take their course filling up the spaces between the plants and producing ordinarily, a good crop of large-sized strawberries. Some lay down straw or grass for the runners to run upon. The utility of this is manifest in many respects, but especially in keeping the fruit from coming in contact with the earth by which it would be injured by dirt. After the fruit is gathered, the straw should be removed and the plants cleared of weeds. They should be transplanted every second year. Silk Culturist.

MANUFACTURE OF GUNPOWDER.

The following description of the nature and manufacture of gunpowder, by an able chymist, (Dr. Ure,) will prove interesting :—

This explosive substance consists of an intimate mixture, in determinate proportions, of saltpetre, charcoal, and sulphur, and is better in proportion, every thing else being equal to the quality of these ingredients. The nitre, in particular, ought to be perfectly refined by successive crystallizations, and finally from adhering water, by proper drying, or by fusion in iron-pots at a regular heat. Nothing can surpass, in these respects, the nitre prepared in the government powdermills at Waltham Abbey. It is tested by adding to its solution in distilled water, nitrate of silver, with which it occasions no perceptible opalescence. The sulphur ought also to be of the finest quality, and purified by skimming, or even sublimation, if at all necessary. The charcoal should be newly made; it should burn without having any sensible residuum, be dry, sonorous, light, and easily pulverized. The charcoal for gunpowder is made either of alder, willow, or dogwood, the latter being preferred—which are cut into lengths and ignited by iron cylinders. It deserves notice that the proportion of powder used for the several pieces of ordnance by the navy, &c., has been reduced one third, in consequence of the increased strength of the composition into which this cylinder, charcoal, enters, compared with that manufactured formerly from charcoal made in pits. The wood, before charring is carefully stripped of its bark. The three ingredients, being thus prepared, are ready for manufacturing into gunpowder. They are first separately ground to a fine powder, which is passed through proper sieves, or bolting machines; and, secondly, they are mixed together in proper proportions. These do not seem to be definitely determined, for they differ in different establishments of great respectability, as is shown by the following table :—

	Nitre.	Charcoal.	Sulphur.
Royal Mills at Waltham Abbey	75	15	10
French, for war	75	42 2	12 5
French, for Sportsmen	78	12	10
French, for mining	65	15	20
Capital's proportions	76	14	9
Chinese ditto	75 7	14 4	9 9
Mr. Napier's ditto	80	15	5

Thirdly: the composition is sent to the gunpowder mill, which consists of two edgestones of a calcareous nature, turning by means of a shaft on a bedstone of the same nature, which give no sparks, as sandstone would be apt to do. On this bedstone, the composition is spread, and moistened with as small a quantity of water as will, in conjunction with the revolving stones, bring it into a proper body of cake, but not paste. The line of contact of the edgestones is constantly preceded by a scraper, which goes round with the wheel, constantly scraping up the cake and turning it into the track of the stone. From fifty to sixty pounds are usually worked at once in each wheel. When the cake has been thoroughly incorporated, it is sent to the corning house, where a separate mill is employed to form the cake into grains or corns. Fourthly: here it is first pressed into a hard, firm mass, then broken into small lumps; after which the graining is executed, by placing these lumps in sieves, on each side of which is laid a dise of lignumvitæ. The sieves are made of parchment skins, perforated with a multitude of round holes. Several such sieves are fixed in a frame, which, by proper machinery, has such a motion given to it, as to make the lignumvitæ runner in each sieve move round with considerable velocity, so as to break the lumps of the cake, and force the substance through the sieves, forming grains of several sizes. The granular particles are separated from the finer dust, by proper sieves and reels. Fifthly: the corned powder is next hardened, and the rougher edges taken off by being revolved in a close reel or cask, turning rapidly on its axis. This vessel somewhat resembles a barrel-churn; it should be only half full at each operation, and has frequently square bars inside, parallel to its axis to aid the polish by attrition. Sixthly: the gunpowder is now dried, which is done generally by a steam heat, or by transmitting a body of air lightly heated in another chamber, over canvass shelves covered with the damp gunpowder. Mining Journal.

Hope is a prodigal young heir, and Experience is his banker; but his draughts are seldom honoured, since there is often a heavy balance against him, because he draws largely on a small capital, is not yet in possession, and if he were, would *die*.

MACKEREL FISHERY

THE whole amount of tunnage employed in the cod and mackerel fisheries of the United States, for the year ending the 30th of September, 1834, was 107,430; of which, 48,725 tuns belong to the mackerel fishery. Of this aggregate amount, 35,196 tuns were owned in Massachusetts; 11,764, in Maine; 1,623, in New Hampshire; and 142, in Rhode Island. The vessels employed average from forty to fifty tuns each; and are found to have amounted, in 1835, to about 900 in Massachusetts, and from 300 to 400 in the three other states. Each vessel has an average of about nine persons, of all ages; making about 8,000 for Massachusetts, and say 3,000 for Maine, New Hampshire, and Rhode Island.

Independently of the profit on their labour obtained by these persons, we have to consider that accruing on the construction and fitting out of the vessels, the manufacture of the barrels, the commerce on the salt consumed, the transportation of the fish coastwise, and all the subsidiary branches of industry connected with these its main departments.

Of course, the advantageous influence of this business on the condition of those places where it is chiefly pursued, is very apparent. Its relation to other employments of a similar description may be inferred from the fact, that, of ninety-nine schooners built in Massachusetts in the year 1834, seventy-three were in the five collection districts most largely engaged in this fishery. Though unproductive in some seasons, it has, on the whole, added greatly to the resources and economick prosperity of the communities engaged in its prosecution.

And the mode in which the business is conducted renders it invaluable as a school of maritime enterprise and nautical industry. Some of the vessels employed in the fishery are owned by merchants or others, who employ them in it during three or four months of the season, and in the coasting trade or some other business the residue of the year. But the greater part of the vessels are owned by the fishermen themselves, or by them in connexion with merchants or mechanicks. It is no uncommon thing for several heads of families, who have sons of the age of nine years and upwards, to take a vessel, and man it from their families, and divide the proceeds among themselves: and as very young boys are thus capable of being useful in this pursuit, it is a great nursery of seamen for the navy and the merchant service. The crews are sometimes engaged on shares, receiving one half of the fish after they are salted; at other times, they are hired on wages. A very common method is, for the skipper and one or more of the crew to take the vessel, and hire the other hands; and pay to the owner, as charter, a fourth part of the proceeds, after deducting salt, barrels, butts, and some other supplies. By these means, the profits and incidental advantages of the business are made to diffuse themselves widely and thoroughly among the middling and poorer classes, without being accumulated, to any considerable extent, in the hands of capitalists.

Mackerel are found on many parts of the coasts of Europe; but the fishery has never been pursued there to any extent. Some places in New Brunswick and Nova Scotia are favourably situated for the business; but they do not embark in it largely, partly from the absence of a domestick market, but still more for the want of adequate acquaintance with the proper process of dressing, curing, and putting up the fish, as it is done in the New England states. The superiour skill, enterprise, and calculation of our citizens, will continue to give us the advantage in this fishery, as in other branches of maritime industry.

From the general table of the quantity of mackerel packed in Massachusetts, it is apparent how steadily and greatly this fishery has increased in productiveness. Taking successive periods of five years as an index of the increase, we have for the beginning only 8,079 barrels; 8,866 for 1809; 1,349 for 1814, one of the years of the late war; 105,433 for 1819; 180,636 for 1824; 225,877 for 1829; and 252,844 for 1834. This rapid augmentation of the quantity taken, especially in the last twenty years, is one of the effects and the evidences of the unparalleled prosperity enjoyed by this country, *and especially those portions of it in which this article is consumed.* It is the increasing demand which, by stimulating to new activity, and to the invention of improved methods of taking the fish, has so much augmented the supply. And the market for the fish has been opened and expanded by the incomparable means of internal communication which the United States possess, in our noble rivers intersecting it like so many arteries, and covered with steamboats; and in our canals and railroads, permeating the country on all sides; and thus imparting to its most remote parts an harmonious correspondence of benefits, and that close interlacement of interests, which are among the great blessings of our admirable Union.

The price of the article has, of course, fluctuated, according to the relative supply and demand; the first quality having taken the whole range of prices from $13 per barrel down to $4 50; and the supply, for the last three years, having fallen short of the demand, a gradual advance in prices has been the consequence.

A small portion of the mackerel, consisting chiefly of the poorest quality, or No. 3, is exported to foreign countries. It is not easy to ascertain the precise quantity exported, as the annual statement, printed by order of Congress, embraces all kinds of pickled fish under one head; probably the amount does not exceed 40,000 barrels; they are sent to the West Indies, to South America, to some ports of the Mediterranean, and to the East Indies.

But the principal market for this fish is in the United States. Philadelphia, New York, Baltimore, and New Orleans have taken the largest quantities hitherto; but more or less is shipped to most of the chief ports along the seaboard, from New York to New Orleans. Thus far, Philadelphia, by its rapid and steady increase of demand, has held the lead of other ports. From 1820 to 1825, that city required from 30,000 to 40,000 barrels as its yearly supply for its own consumption, its interiour trade, and its foreign or domestick export. It now receives three times that quantity, and about one third part of the whole product of the fishery. In the southern states, also, the demand increases with the increased facilities of interiour transportation, and must continue to be enlarged as the interiour of the country goes on acquiring access to markets and added population and prosperity. It is understood, also, that this fish, owing to its good qualities as an article of food, and

its convenient form for subdivision and distribution among the slaves, is gaining favour in the estimation of the planters of the South. As evidence of which fact, it may be stated, by way of example, that, with a coloured population of 210,000 persons, the state of Georgia consumed the last year, 37,000 barrels, of all qualities, valued there at $286,750. Doubtless, the consumption is proportionally great in the other planting states.

These facts indicate the importance of the mackerel fishery as a domestick interest, which every part of the country is concerned in, and which is, therefore, entitled to the respectful consideration of Congress. It only remains to show, in explaining the mode of taking this fish, what are the legal inconveniences which this bill is designed to remove.

The season for the first appearance of mackerel, on those parts of our coast where they are usually taken, is from the 20th of April to the 1st of May, according as the season is more or less forward; at which time they strike on the shore-soundings off the capes of the Chesapeake and Delaware. Between the latter place and the Egg harbours, they are usually plentiful for fifteen or twenty days, within a few leagues of the land; and mackerel vessels, which are on the ground seasonably, meet in general with good success, if the weather prove to be favourable. After which, the mackerel move to the northeast, scattering over a large space of ground, from near the shore to the soundings inside the gulf stream, and extending down the coast off Long Island to Nantucket, which they reach early in June. Sometimes they collect more in bodies off Long or Block Islands, and are taken plentifully for a few days; after which, they proceed north, through the south channel, between the Vineyard islands, into Massachusetts bay. They reach that bay from the 20th of June to the 1st of July, and continue there until late in November. Large bodies of them pass up the bay of Fundy, as they are sometimes abundant between Grand Manan and Annapolis Royal, and doubtless proceed further in the same direction. Returning, they often follow the coast, striking into the bays in October and November, and passing out of Massachusetts bay by cape Ann and cape Cod, in the vicinity of which places they are sometimes found in abundance late in November.

Meanwhile, other shoals of mackerel appear to approach our shores from the east, by cape Sable. Probably, this may be a portion of the body which annually enters the bay of St. Lawrence. Striking in from the gulf, on the Nova Scotia soundings, a part of them take a westerly direction towards Massachusetts bay, while the main body passes into the bay of St. Lawrence, east of cape Breton, and through the Guts of Canso.

The time and place of spawning can be determined only by the different conditions of the fish, when taken at different times. In Massachusets bay, it appears to be, at a medium time, about the 1st of June. Notwithstanding their constant liability to be destroyed by other fish, from the moment of shooting spawn up to the time of their full growth, still their inconceivable number is such as to surpass all calculation. When the sea is smooth, they are seen absolutely covering its surface.

Their movements and haunts are very precarious, and their habits are more versatile than those of almost any other fish of commercial importance. So true it is, that fishermen who have pursued the business for a long period have but little advantage over those recently engaged in it, in judging, with any degree of certainty, which may be the best spot of fishing ground at any particular season of the year. It is oftentimes the case, that vessels in extreme parts of the bay, and in nearly all intermediate stations, will have good fishing for a few days, and for many succeeding days no mackerel will be visible; after which, they will appear to rise simultaneously, in nearly all parts of the bay; and in moderate weather large tracks of the surface of the sea will seem to be covered with shoals of the fish, swimming with one side of the gill out of water. At times, the fishermen can only take a few from a shoal, as it passes directly in contact with their vessel, without being induced to stop by bait, or altering its course in the least degree. It occasionally happens that late in the year the fishermen will reap a rich harvest, when the whole previous season had been comparatively unproductive. Thus it was in the autumn of 1831. In October of that year, the mackerel struck in very near to cape Ann. Large fleets of vessels collected in such close order, as to be continually coming in contact. The sea being smooth, and great quantities of bait thrown out, the fish collected in such quantities, that some vessels took nearly one hundred barrels in a single day. At the same time, they were very abundant off cape Cod and on Jeffries Ledge; and it was computed that more than 70,000 barrels were taken in a single week.

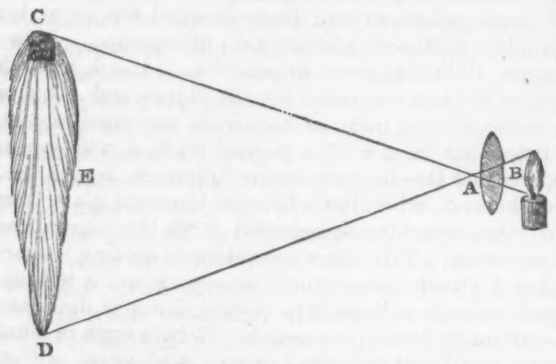
Now, the habits of this fish being so uncertain, it frequently happens that a mackerel vessel, on the way to her fishing-ground, or when arrived at some fishing-ground which she may have been induced by previous success to select again, finds no mackerel, and, while waiting or seeking for mackerel, encounters abundance of other fish; by taking which, she might save her voyage; but which she is obliged to abstain from touching, in consequence of the rigorous terms of her license, which confines her exclusively to the business of taking mackerel. Vessels are sometimes under the necessity of shifting their ground, to avoid taking codfish in their mackerel-jigs. They may lose all the outfit and time of a trip, from the absence of mackerel, when they have absolutely to shun the presence of other fish, in consideration of the technical strictness of the law.

OPTICKS.

THE science of *Opticks* affords scope for many delightful and interesting experiments; but some of its instruments are very expensive. I shall therefore state only a few simple exhibitions and experiments which can be made at a trifling expense. Before the teacher can illustrate any of the principles of this science by experiment, it will be requisite that he provide himself with a few convex lenses, some of short and others of pretty long focal distances. For example, double or plane-convex glasses, $\frac{1}{2}$ inch, 1 inch, 3 and 4 inches, focal distance, which may be made to illustrate the construction of a compound microscope, as I have elsewhere shown in my work, "On the Improvement of Society." Also

lenses, from 3 to 6 or 8 feet focus, to illustrate the construction of a telescope, and the nature of a camera obscura; and two or three concave mirrors for illustrating some of the phenomena of *reflection*. The principle on which a *compound* microscope, a *solar* microscope, and a magick lantern or *phantasmagoria*, are constructed, may be shown by one easy experiment. Let A, Fig. 1, represent a convex glass, suppose six inches focal distance, and B the flame of a candle. Hold the glass, A, at a little more than six inches from the candle, and on the

Fig. 1.



opposite wall will be formed a large magnified image of the candle, C E D. This image will be inverted, and larger than the flame of the candle in proportion as the distance A E, from the glass to the wall, exceeds the distance A B, from the glass to the candle. Suppose the distance A E to be 7 feet or 84 inches, then the image of the candle will be magnified in the proportion of 7 to 84, or 14 times. In this experiment the candle represents the *object* to be magnified in a compound microscope, A the object-glass, and C D the image formed by the lens, which is magnified a second time by the eye-glass of the microscope. In reference to the *solar* microscope, the candle represents the small object to be magnified, and C D its magnified image on a white wall or screen; and in reference to the *magick lantern*, or phantasmagoria, the candle represents the figures painted on the sliders, A the convex lens which throws the image of the figures on a screen, and C D the magnified image of the painted figures. In all these instruments, the principle on which the objects are magnified is precisely the same; the size of the image is always in proportion to its distance from the lens by which it is formed; but as the image is enlarged it becomes less brilliant and distinct, and therefore there is a proper medium which must be fixed upon as to the distance between the lens and the screen on which the image is thrown; but a skilful teacher will always know how to modify such circumstances.

The nature of a *telescope* and of the *camera obscura* may be illustrated as follows:—Fix a lens of 4, 5, or 6 feet focus, in a hole made in a window-shutter; darken the room, so that no light can enter but through the lens.* If its focal distance be 5 feet, or 60 inches, a white screen placed at that distance will receive the image of the objects without, opposite the glass, where they will be beautifully depicted in all their forms, colours, and motions, in an inverted position, forming a kind of living picture.—This exhibition never fails to excite the admiration of the young. If now, a lens about 2 inches focus be placed 2 inches beyond the image thus formed, and the screen removed—in looking through this lens, the objects will appear magnified in the proportion of 2 inches to 60, that is, 30 times; and as the image was inverted, so the object, as seen through the glass, will appear as if turned upside down.—This is perhaps one of the best modes of explaining the principle of a refracting telescope, and the reason why the object appears inverted, when viewed with a single eye-glass. The same thing may be partly shown by a common telescope. Having taken out all the eye-glasses, except the one next the eye, adjust the telescope to distinct vision, and all the objects seen through it will appear as if turned upside down. The manner in which the image is reversed by the other eye-glasses, and the object made to appear upright, might then be explained. Objects might likewise be exhibited through a telescope, as appearing *in different positions and directions*. This is effected by means of a *diagonal eye-piece*, which is constructed in the following manner:—Let A B,

Fig. 2.

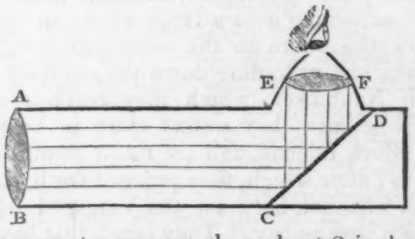


Fig. 2, represent a convex glass about 2 inches focal distance; C D a plain metallick speculum, of an oval form, well polished, and placed at half a right angle to the axis of the tube; and E F, another convex lens, 2 inches focus. The centre of the speculum may be about $1\frac{1}{4}$ inch from A B, and about $\frac{1}{2}$ inch from E F. The rays proceeding from the lens A B, and falling from the speculum, are reflected in a perpendicular direction to the lens E F, where they enter the eye, which looks down upon the object through the side of the tube. When this eye-piece is applied to a telescope, with the lens E F on the upper part of it, we look down upon the object as if it were under our feet. If we turn the eye-piece round in its socket a quarter of a circle towards the left, an object directly before us in the south will appear as if it were in the *west*, and turned upside down. If, from this position, it is turned round a semicircle towards the right, and the eye applied, the same object will appear as if it were situated in the *east;* and if it be turned round another quadrant, till it be directly opposite to its first position, and the eye applied from below, the object or landscape will appear as if suspended in the atmosphere above us. Such experiments, when accompanied with proper diagrams, and an explanation of optical principles, may easily be rendered both entertaining and instructive.

A camera obscura, on a larger scale, and on a different plan from that alluded to above, might be erected on the top of every school-house, which is constructed with a flat roof, as formerly suggested

* A lens is a round piece of glass, ground either concave or convex. All lenses that magnify objects are *convex*, or thicker in the middle than at the edge, such as common magnifiers, reading-glasses, and the glasses used in microscopes and telescopes, except the Galilean perspective, in which the eye-glass is *concave*.

Fig. 3.

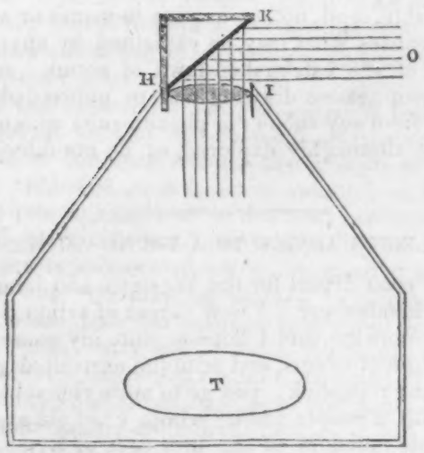


Fig. 3 contains a representation of a wooden building, on the top of which is a large convex lens, H I, about 10 or 12 feet focal distance. At half a right angle to this lens is a plain speculum by which the rays of light from the objects O are reflected downwards through the lens, which forms a picture of all the objects before the speculum, on a round white table, T, in all their colours, motions, and proportions. If the speculum be made to revolve, the whole of the surrounding landscape may be successively depicted on the table. When the lens is of a long focal distance, as from 10 to 15 or 20 feet, it produces a pretty powerful telescopical effect, so that objects may be distinctly perceived at a considerable distance, and individuals recognised on the picture at the distance of a mile or more. Wherever there are objects in motion, such as ships sailing, birds flying, smoke ascending, crowds of people moving to and fro, or boys and girls engaged in their amusements; this exhibition always affords a high degree of satisfaction. It might occasionally be used, not only as an illustration of optical principles, but also as a reward for diligence and good behaviour.

In connection with the above, representations might be given of natural and artificial objects, as exhibited by the *phantasmagoria*. Discarding the ridiculous and childish figures which were formerly used in the common magick lanterns, opticians have now constructed sliders which exhibit representations of the telescopick appearances of the heavenly bodies, the different constellations, the motions of the earth and moon, and various objects connected with botany, mineralogy, and zoology; and such objects, when exhibited in this manner, are calculated to produce both instruction and amusement. The solar microscope in particular, (or the *oxy-hydrogen*, if it can be procured,) should be occasionally exhibited to the young, to convey to them some ideas of the wonderful minuteness of the atoms of matter, and the admirable mechanism displayed in the structure of vegetables and the bodies of animals, particularly in those myriads of animalculæ which are invisible to the unassisted eye. Such animalculæ may be procured almost at any season, but particularly during the summer months, by infusing, in separate open vessels, small bits of grass or hay, leaves of flowers, or other vegetable substances, when, after a week or ten days, animalculæ of different kinds, according to the nature of the substances infused, will be perceived in vast numbers, by the aid of the microscope, in every drop of the infusion. A compound microscope is perhaps as good an instrument as any other for giving a steady and satisfactory view of such objects; and the only objection to its use for a school is, that only one individual can see the object at a time. When a teacher is not furnished with an instrument of this kind, fitted up in the usual way, he may, with little trouble, construct a compound microscope, by means of the eye-piece of a common pocket acromatick telescope, which may be purchased for one guinea, or less.—The eye-pieces of such telescopes contain four glasses, arranged on a principle somewhat similar to that of the glasses of a compound microscope. If we screw off one of these eye-pieces, and look through it in the usual way, holding the object end about a quarter of an inch distant from any small object, such as the letters of a printed book, it will appear magnified about ten or twelve times in length and breadth; remove from the tube the third glass from the eye, which is the second from the object, and look through it in the same manner, holding it more than an inch distant from the object, and it will appear magnified more than twenty times in diameter, or above 400 times in surface. If, by means of small pasteboard tubes, or any other contrivance, we attach the glass that was taken out to the outside of the object-glass of the eye-piece, so as to be nearly close to it, we shall have a magnifying power of nearly forty times; or, if we substitute for these two object-glasses a single glass of about a half-inch focal distance, we shall form a pretty good compound microscope, magnifying above forty times in diameter, and 1600 times in surface, which will afford very pleasing views of various objects in the animal and vegetable kingdoms. The magnifying powers now stated will differ somewhat in different eye-pieces, according to their lengths and the focal distances of the glasses of which they are composed. The tube of the eye-piece thus arranged, may be occasionally fitted into a pasteboard tube supported by three pillars, in which it may be moved up or down for adjusting it to distinct vision, and the object placed underneath and properly illuminated.—These hints are suggested, on the score of economy, for those who have no regular microscopick apparatus.

Various amusing experiments, besides the above, might be exhibited to the young, such as the *optical paradox*, an instrument through which objects may be seen, although a board or other opake body be interposed between the eye and the objects—the *prism*, which, in a dark room, separates the primary colours of the solar rays—the *multiplying-glass*, which makes one object appear as if there were ten, twenty, or thirty—the *burning-glass*, which, by means of the sun's rays, sets on fire dark-coloured paper, wood, and other inflammable substances—and *optical illusions* produced by the various refractions and reflections of light in water, combinations of plane mirrors, and by concave speculums. A concave mirror, about 5 or 6 inches in diameter, and 10 or 12 inches focus, which may be procured for about half a guinea or 15 shillings, is of great utility for a variety of exhibitions. 1. When held at nearly its focal distance from one's face, it represents it as magnified to a monstrous size. 2. When

held in the solar rays, directly opposite the sun, it collects the rays into a focus before it, so as to act as a powerful burning-glass, and in this way a hole may be burned in a thin board. 3. When hung at an elevation of about five feet, and a person placed opposite to it, at 6 or 7 feet distant, he will see his image hanging in the air in an inverted position, betw him and the mirror, and if he approach a little nearer the mirror, and hold out his hand towards it, the image will appear to do the same, as if about to shake hands, and if he stretches his hand still nearer the mirror, the hand of the image will appear to pass by his hand, and approach nearer his body. 4. Such a mirror is of use in explaining the construction of a *reflecting* telescope. When it is held opposite to a window, the image of the sash and the objects without the window will be seen depicted in its focus on a piece of white paper held between it and the window, which represents the manner in which the first image is formed by the great mirror of a reflecting telescope;—and the manner in which the small speculum of a Gregorian reflector forms the *second* image, may be shown by holding the mirror at a little more than its focal distance behind a candle, and throwing its magnified image upon an opposite wall, in the same way as the lens, fig. 1, p. 278, by refraction, produced the enlarged image, C D. 5. If a bright fire be made in a large room, and a very smooth, well-polished mahogany table be placed at a considerable distance near the wall, and the concave mirror so placed that the light of the fire may be reflected from the mirror to its focus on the table, a person standing at a distance towards the fire, but not directly in the line between the mirror and the fire, will see an image of the fire upon the table, large and erect, as if the table had been set on fire.

Various illusions and deceptions have been produced by means of concave mirrors. Pagan priests are supposed to have rekindled the vestal fire by this instrument; and with the same instrument, on a large scale, Archimedes is reported to have burned the Roman fleet. When the mirror is concealed from the view of the spectator by certain contrivances, he may be easily deceived, and tantalized with a shadow instead of a substance. He may be made to see a vessel half full of water inverted in the air without losing a drop of its contents. He may be desired to grasp what appears a beautiful flower, and when he attempts to touch it, it vanishes into air, or a death's head appears to snap at his fingers. He may be made to behold a terrifick spectre suddenly starting up before him, or a person with a drawn sword, as if about to run him through. An exhibition of this kind was sometime ago brought before the publick, which was effected by a concave mirror. A man being placed with his head downwards, in the focus of the mirror an *erect* image of him was exhibited, while his real person was concealed, and the place of the mirror darkened; the spectators were then directed to take a plate of fruit from his hand, which in an instant was dexterously changed for a dagger or some other deadly weapon. It may not be improper occasionally to exhibit such deceptions to the young, and leave them for some time to ruminate upon them till the proper explanations be given, in order to induce them to use their rational powers in reflecting on the subject, and particularly to teach them to investigate the causes of every appearance that may seem mysterious or inexplicable, and not to ascribe to occult or supernatural causes what may be explained by an investigation of the established laws of nature; and to guard them against drawing rash or unfounded conclusions from any subject or phenomenon which they have not thoroughly explored, or do not fully comprehend.

NAPOLEON'S ADVICE TO A YOUNG AMERICAN.

"You soon depart for the Western, and I for the Eastern hemisphere. A new career of action is now opened before me, and I hope to unite my name with new and great events, and with the unrivalled greatness of the republick; you go to unite yourself once more with a people among whom I behold at once the simple manners of the first ages of Rome, and the luxury of her decline: where I see the taste, the sensibility and science of Athens, with her factions; and the valour of Sparta without her discipline.

"As a citizen of the world, I would address your country in the following language: Every man and every nation is ambitious, and ambition grows with power, as the blaze of a vertical sun is the most fierce. Cherish, therefore, a national strength—strengthen your political institutions—remember that armies and navies are of the same use in the world as the policy in London or Paris, and soldiers are not made like potter's vessels in a minute—*cultivate union, or your empire will be like a colossus of gold, fallen on the earth, broken in pieces, and the prey of foreign and domestick Saracens.* If you are wise, your republick will be permanent; and, perhaps, Washington will be hailed as the founder of a glorious and happy empire, when the name of Bonaparte shall be obscured by succeeding revolutions."

DISCOVERIES SINCE 1766.

THE old steam-engine improved, 1769. Ancient religion in India, 1774. Patent bird-shot, 1775.—Spinning by steam, 1782. Air-balloons; Herschell's telescope and four new planets; to unstop the lachrymal duct; recovering drowned persons; suspenders; umbrellas and cut nails, 1792. Hydraulic press and telegraphs, 1794. The back operation for the stone, 1800. Percussion powder; Galvanism; the names in chymistry, 1803. The Argand lamp; boring for water, coal, &c., 1804. Roman cement; gas light, 1808. Sugar cultivated in Louisiana, 1809. The Nautical Almanack; navigation by steam, 1813. Printing by steam-power; stereotype plates; the circular saw; sugar from the root of beet; anthracite coal; lithographick impressions, 1816. Musical boxes, 1817. Safety-lamps; chain-cables, 1820. Chronometers perfected; power-looms for cloths, stockings, &c.; tread-mills for prisons; the stomach-pump; railways; lead and coal mines in the U. States; craniology, 1828.—Steam-guns and carriages, 1832. Gum-elastick shoes and boots 1833.

Experience is the mother of science.
Learning refines and elevates the mind.
Pursue useful and profitable studies.

MISCELLANY.

CURIOUS RELICK OF ANTIQUITY.

We have now before us a very curious and interesting specimen of ancient art, presented to us by a friend, the work probably of a people who inhabited this country previous to the present race of aborigines; for it displays a perfection in the arts far surpassing the rude state in which they at present exist among this people.

This relick was found in Michigan, in one of those ancient fortifications which are scattered over our country. It is a piece of sculpture, the material of which resembles, somewhat, black slate, but is as hard as flint. A knife will make no impression upon it. It evidently must have been carved when in a softer state than the present. It was probably formed of some earthly material into a proper consistence to be cut, and was then hardened by baking.

The figure is that of a female sitting on the ground, in an attitude and air of sadness and despondency, leaning her head upon the back of her left hand, the elbow resting on the top of a small vessel in the form of a cask; the right hand resting on the knee and holding something which appears to have engraved on it some written characters, but which are too small and indistinct to enable us accurately to discern their form. Over the head is thrown a loose drapery, falling down upon the shoulders and back, leaving the left arm, on which she reclines, and the left breast naked; but folding across in graceful folds over the right arm and breast, and covering the front part of the figure. On the forepart of the head, which is not covered by the drapery, the hair is gracefully parted, and a portion of it hangs down in tresses upon the left breast. The little cask on which she leans, shows the staves in regular order, with three hoops at the top, and two at the bottom. The head of the cask comes up even with the chime, and seems to be formed of narrow strips like the staves; on the front part of the cask there appears to have been something attached like a handle, but of what form is not distinguishable, as a portion of the front part of the figure is broken off. Around the cask lengthwise, over the hoops, passes something like a band, which was designed, perhaps, for the purpose of carrying it.

From the size of the vessel, compared with that of the figure, we should judge its use was to carry water. Every part of the figure and its appendages, is very distinct, and the sculpture admirably performed, and yet the whole height by exact measurement, is but *one inch and one eighth*. The head, which displays very perfectly the features, and even a countenance indicative of wo, is not larger than *a good-sized pea*. What this tiny figure was meant to represent, when was the age in which it was made, and who were the people whose ingenious artists could produce such works—are interesting inquiries, but will probably never be satisfactorily answered.

Genesee Farmer.

In a late number of the Family Magazine we gave n account of the inscription on Dighton Rook, Massachusetts. This, however, is not the only monument of this kind in the United States. They are ound—1, on the Alatahama, called also Ooakmulgee, in Georgia. 2, on Cumberland river, near Rock Castle. 3, on the Ohio, fifty miles below Pittsburgh, and two miles below King's or Indian creek. 4, at a spot within four miles of the confluence of the Kenhawa and Elk. 5, on the Allegany, fifteen miles below Venango and seventy miles to the southward of Lake Erie. A rock, of which the substance is not very hard, is sculptured, on the side facing the river, with figures of various animals, and with lines and curves, of different forms. The lines which compose them are about the tenth of an inch deep and a quarter of an inch broad. 6, on the Housatonic, at Schaghticoke. 7, on the Connecticut, on a pine tree in Wethersfield. 8, on the same river, on rocks at the Great falls. 9, on West river, on a rock on the bank of a cove, near its confluence with the Connecticut. 10, in Narraganset bay, Rhode Island, near Newport, on the lands of Mr. Job Almy. 11, in the same, on the lands of the late Colonel Almy, on the Peninsula of Paucatuc, on the east side of the bay, and six miles from the shore. 12, in the same, at Tiverton. 13, in the same, on Taunton river.

A Relick.—A citizen of this place lately found near the "Bug Light," about a mile from town, a brass arrow-head, about an inch in length, sharp at the edges, and in the centre not thicker than half a dollar. It is well known that the Indians formerly inhabiting this island did make use of arrow-heads of silex, or other hard stone, wrought into shape with great labour; but this metallick specimen is the first of the kind of which we have yet had any knowledge. Near to the centre is a perfectly round hole, of sufficient size to admit an ordinary darning-needle; and in every respect it resembles those described by the writer of an article in the American Monthly Magazine, on the subject of the antiquities of North America.

Nantucket Inquirer.

Important Antediluvian Discoveries.—Doctor Kilppstein, a German savant, who has long devoted himself to the study of geology, and who is at present directing the excavations in the neighbourhood of Alzei, (a small town in Rhenish Hesse,) where numerous fossil bones had been found, has lately made a most valuable discovery for natural history. In digging 28 feet below the soil, near Eppelsheim, about a league distant from Alzei, he found in a state of the most perfect preservation the head of a *dino therium giganteum*, probably the most colossal of the antediluvian animals, whose existence was first indicated, and nearly specifically determined by Doctor Camp, the learned zoologist. The head measures six feet in length, by three and a half in breadth; and its weight is nearly five quintals. Near the head was found an humeral bone, six feet long, weighing two quintals, appertaining apparently to the same animal. No remains of this kind have ever been found before.

Gazette Allemande.

Phenician Relick.—The Society of Antiquaries, in London, possess a cylindrical vessel of granite, decorated with a peculiar Grecian ornament on a hoop-like circle, which surrounds the exteriour. It was brought, many years ago, from the Moscheto shore of Central America, and is considered an additional proof that the shores of the western continent were peopled by the ancient Phenicians.

LITERARY NOTICES.

The Diary of a Désennuyée. Two volumes in one. New York: Harper & Brothers. A lively picture of English fashionable life, the scene of which is laid partly in London, and partly on the Continent. Although by no means equal in point of interest to Mrs. Jameson's "Diary of an Ennuyée," it is rather an amusing publication. It is one of the cheap series of novels, the price at retail being only fifty cents.

The Three Eras of the Life of Woman. By Elizabeth Elton Smith. Two volumes in one. New York: Harper & Brothers, 1836. Another of the fifty-cent series, and much superiour to the book mentioned above. The three eras in the life of a woman which are considered important enough to form the groundwork of a novel, are, as a maiden, a wife, and mother. The work contains much fine delineation of character, written in rather a spirited style, and the language is frequently elegant and eloquent.

The Adventures of Gil Blas of Santillane. Translated from the French of Le Sage. By T. Smollett, M. D. *To which is prefixed a Memoir of the Author, by* Thomas Roscoe. *Illustrated by* George Cruikshank. In two volumes. New York: Harper & Brothers, 1836. A new and very elegant edition of a most amusing and talented book, which has been made the subject of much dispute; the French maintaining that it must have been written by one of their countrymen, or it could not have delighted them so much, while the Spaniards regard it as derived originally from Spanish manuscripts, several of which belonged to Cervantes, the popular author of Don Quixote, and consider Le Sage to be merely as it were a worker in mosaick, deriving a pebble from this author, and a jewel from that. Be this as it may, the book as is well known is one of the most amusing in the English language. This edition too is extremely well executed, and is ornamented with twelve illustrations by Cruikshank, which are admirable. Gil Blas is uniform with Tom Jones and Humphrey Clinker.

Herodotus; Translated from the Original Greek, by the Rev. William Beloe. New York: Harper & Brothers, 1836. We are happy to welcome this old acquaintance in his English dress, and are glad, too, to find that this popular Greek historian has been introduced into the *Classical Library* of which it forms the twenty-second, twenty-third and twenty-fourth numbers. It is embellished with a portrait of Herodotus drawn from an antique bust.

The September numbers of the *Petit Courrier des Dames* are uncommonly lively and entertaining. This periodical, although devoted to the fashions, frequently contains much that is amusing. The plates are extremely well executed. It is published by Behr & Astoin, at 94 Broadway, New York.

The Fairy-Book, New York: Harper & Brothers, 1836. One of the prettiest gifts for children that we have seen for many a day; embracing some of the standard juvenile tales, as Cinderella, &c., and in addition many which have been translated from the French expressly for this work. It is embellished with numerous wood-cuts by Adams. The frontispiece designed and drawn on the wood by Mr. J. G. Chapman, is truly a beautiful specimen of art, equal to any thing of the kind ever seen in this or in any other country.

Poems, by William Cullen Bryant. This new and improved edition of Mr. Bryant's poems will be welcomed by all his admirers. It contains, in an extremely neat and elegant volume, not only what was comprised in the former editions, which have met with a rapid and extensive sale, but many choice scraps, now collected for the first time. The book is embellished with a vignette, designed by Weir. It is from the press of the Messrs. Harper.

The Marriage Almanack, Translated from the German of Dr. Des Berger *by an English Physician.* We have glanced over the pages of this little volume which contains much that is interesting to the young married female. It is imported from London by William A. Colman, Broadway, New York.

Letters to Young Ladies. By Mrs. L. H. Sigourney. Third edition. New York: Harper and Brothers, 1836. This series of letters here addressed to young ladies, by one of the most distinguished of her sex, is extremely valuable and has already been favourably received by the publick; the fact that a third edition is called for shows that their value is appreciated. Among the different subjects on which this volume treats, we notice, the value of time, religion, knowledge, industry, domestick employments, health and dress, manners and accomplishment, sisterly virtues, books, friendship, cheerfulness, conversation, benevolence, utility, &c. We commend it to our readers.

We have received our monthly number of the *Western Literary Messenger.* It is filled as usual with interesting matter; and is one of the cheapest magazines published in this country. An agency for it has been established in Boston, with Messrs. James Munroe & Co.

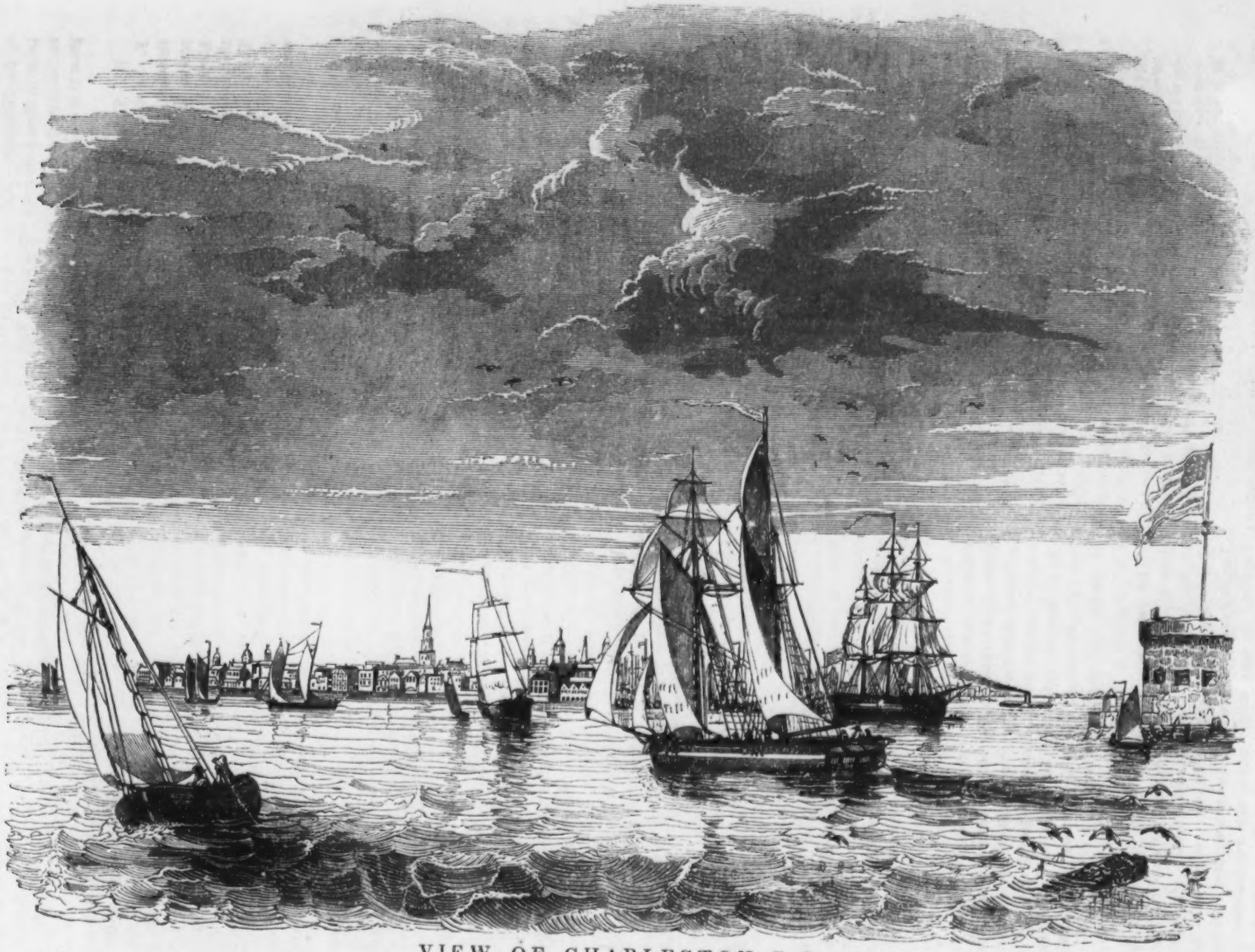
Homer, Translated by Alexander Pope. New York: Harper & Brothers, 1836. The twenty-fifth, twenty-sixth, and twenty-seventh volumes of the Classical Library, contain Pope's popular translation of Homer. We are glad to see these standard works of antiquity put within the reach of every one.

The Merchant's Clerk, and other Tales. By Samuel Warren, LL. D. New York: Harper & Brothers, 1836. A new volume by the author of that fascinating book the "*Diary of a Physician.*" The tales now presented to the publick for the first time in their present shape, are equal in interest to any of this writer's previous productions. The question, as to the authorship of the "Diary of a Physician," is now, we presume, settled.

Home, by Mrs. Stickney. New York: Harper & Brothers, 1836. A well-written work, and one too which bids fair to be extremely popular. We commend it to the attention of parents, satisfied that if read with care, the moral which it inculcates may be the means of preventing much unhappiness.

We are happy to learn that the Messrs. Harper have in press a new novel from the pen of that admired novelist W. Gilmore Simms, Esq. This book, which will be issued soon, is intimately connected with the history of our country, and will as is usual with the productions of this writer, be purely American; it is one of the series promised us in the preface to his last production, "The Partisan." The title of the new book is *Mellichampe.* We predict for it an extensive sale.

The same gentlemen have in hands, a little work, which we think will be highly useful to medical students and practitioners. Its title is, the *Anatomist's Manual, Translated from the French of* J. L. Bayle *by* A. Sidney Doane, A. M., M. D., of New York. The book contains a concise and clear account of the human body, expressed in very simple terms, and accompanied also with practical directions for preparing the different parts for dissection. Its size fits it particularly for the lecture-room or anatomical theatre, and the price of it will be much less than that of other books on the same subject. The work has already passed through four editions in France.



VIEW OF CHARLESTON, S. C.

CHARLESTON, S. C.

The frontispiece of this number of the Family Magazine, presents to our readers a view of the city of Charleston.

Charleston is situated in lat. 32° 47′ north, and lon. 80° 00′ 52″ west from Greenwich. It is a peninsula formed by the Ashley river on the west, Cooper river upon the north, and the Atlantick ocean on the south and southeast. The harbour is one of the finest in the United States, and is well protected from hostile incursions by castles and forts. The city is located on a flat and even surface, but appears to considerable advantage upon entering the harbour. The houses which are chiefly of wood have a dusky appearance, arising partly from their antiquity, and partly from the corrosive influence exerted by a saline atmosphere upon painted buildings. With the exception of Broad street running through the city from east to west, and Mutiny street, extending its entire length from north to south, the streets are for the most part narrow, but less circuitous and irregular than those of Boston and some other of our older cities. The principal publick buildings are the court house, city hall, guard house, fire-proof (state) building, custom-house, St. Andrew's hall, South Carolina society's academy, Charleston college, orphan house, medical college, hospital, poor-house and jail. Of the churches, the most venerable (since the destruction of old St. Philip's by fire,) is the St. Michael's at the intersection of Broad and Mutiny streets. The steeple of this church is very beautiful. Its total altitude from the pavement to the top of the vane, is 186 feet three inches. The length of the vane is seven feet three and a half inches. St. Peter's, a new Episcopal church, is also a neat and chaste edifice, built in more modern style. St. Philip's, which was founded in 1713, and destroyed by fire in the winter of 1835, is being rebuilt upon its ancient plan which was very grand and imposing. Besides these, are Baptist, Methodist, Presbyterian, Lutheran, Unitarian, Catholick, Universalist and French Protestant churches. The most influential, if not the most numerous sect of Christians in Charleston are the Episcopalians. The standard of pulpit eloquence in this city is at the present moment more elevated than formerly, and it boasts of divines of distinguished talents and piety.

The publick and private edifices of Charleston are not remarkable for architectural elegance, but are, for the most part, plain and substantial buildings. The burnt district, the theatre of a ruinous and extensive fire which happened about a year ago, is sold out to purchasers upon the condition that handsome buildings shall be erected, which, when completed, will doubtless improve greatly the appearance of the city. Horticulture is much attended to here. The principal fruits cultivated are the fig, orange, peach, pomegranate and grape. The gardens are embellished with every species of flower foreign and indigenous, and relieved by shrubbery of a rich and beautiful foliage. On the anniversary of the Horticultural society, fruits and flowers of every flavour and hue are exhibited publickly, and to those who offer the most rare and curious, premiums are awarded. On these occasions, the ladies are often the most successful competitors.

The population of Charleston, including the suburbs, is probably 40,000. Of foreigners, the French form a considerable proportion, but Charleston has many adopted citizens, who have resorted to it from every section of the globe. The mercantile class is composed, in a great measure, of settlers from the New England states. The citizens of Charleston are proverbial for their hospitality, chivalrous feelings, and elegant and refined manners. They entertain the nicest sense of honour, and are prompt to revenge an insult, but no people are more generous in their friendships, more steadfast in their attachments to the worthy, or more observant of all the proprieties that characterize civilized life. A true Carolinian is a high-minded gentleman all the world over, and into whatever errours he may be betrayed by inadvertence, he never forgets what is due to the honour of a man and the pride of a southron. The planters, who constitute the most wealthy portion of the citizens, reside in the country during the winter and spring, but spend their summers in the city when they do not travel, which they often do, scattering the proceeds of their large incomes, with no niggardly spirit, over the whole length and breadth of our common country. Many of them have summer-houses upon Sullivan's island, a few miles from town, whither they resort in unhealthy seasons, or in healthy ones, for relief from the heat of the city, and to enjoy, with their families around them, the fine and salubrious sea-breezes. The ladies of Charleston are less ambitious of costly dress and personal decoration than those of Baltimore or New York, but what is saved by this species of economy is generally expended in fine equipages. Their complexions are usually less fair and blooming than those of northern females, but southern brunetts are often very beautiful. The fashionable promenade of the ladies of Charleston is King street, where they make a fine display in carriages, barouches, and as pedestrians from eleven o'clock till one in the early part of the day, and, at this season of the year, from four to six in the evening. It is a little singular that Charleston, where the pride of state supremacy is proverbial, should retain the name of *King street* for its most aristocratick thoroughfare, while Boston, nearly a half century ago, proscribed the name as a badge of toryism, and substituted that of State street instead of it. In view of this matter, we can only say, that names are not always the signs of things.

Agriculture, which has given to the South, its chief influence and importance, has hitherto been the most reputable occupation of the wealthy, but, in accommodation to circumstances and the spirit of the times, many of the most distinguished citizens and largest landed proprietors are now ambitious to give to their sons a liberal and thorough mercantile education. The commercial prospects of Charleston were never more flattering, than at the present moment. Its exports in rice and cotton—the staple productions of the South—have always been large, and to increase the facilities of trade, an enterprising company of merchants, including in the number several heavy capitalists, have recently made expensive arrangments for a direct intercourse between Charleston and Liverpool, the effect of which will be, to render the former an important city for the Southern country, and, in connexion with the great

Cincinnati railroad, (the most wonderful project of the age, and which is now in progress,) for the West also. In the course of ten or fifteen years, Charleston will, in all human probability, be one of the most thriving and important commercial emporiums in the whole Union. It may not outstrip New Orleans, situated at the mouth of the Mississippi and which has peculiar advantages, but it will unquestionably be the formidable rival of that flourishing city.

Prejudices have been entertained against Charleston as an unhealthy city, but without reason. It is, we believe, one of the healthiest places upon the face of the globe. By accurate calculations drawn from a comparison of the bills of mortality of Charleston, and the principal cities of Europe, it would appear that the former, in proportion to its number of inhabitants, and, notwithstanding the occasional prevalence of destructive epidemicks, deserves to be regarded as pre-eminently healthy. A gradual improvement has taken place in the climate, arising in part from the clearing of the forests in the neighbouring lowlands, but more especially from the attention which is paid to cleanliness, and the prevalence of social order. In none of our cities is there a more effective police;—in none are the streets kept in better order;—in none is there less insubordination and fewer riots. The perfection of the social arrangement from which these results flow, arises from the fact, that the slaves, who compose the lowest class of the population—a class which in the free states, is always the most turbulent—are kept under due and wholesome restraint—a restraint however, which is not inconsistent with their enjoying many privileges and more leisure than even Northern domesticks.

Charleston is remarkable for its charitable institutions. Of these the most richly endowed are the South Carolina society for the education of children and the relief of the destitute families of diseased members; the orphan asylum for the instruction and support of orphan children of both sexes; the Fellowship society, a charity foundation for the benefit of the rising generation; the St. Andrew's society and the New England society, embracing each of them, benevolent objects. The literary character of Charleston has always stood deservedly high, and it has given birth from time to time, to some of the first minds that have adorned the nation, within the forum or the halls of Congress. Such advocates as Grimké, King, Pettigru, Legare, Hunt, Dunkin, and Mimminger would grace the bar of any court in Christendom. Charleston college is a respectable institution. It is under the charge of a talented faculty, and affords facilities for acquiring an excellent education. Many parents, therefore, prefer educating their children at home, as they have substantially all the advantages which they would enjoy abroad at the best Universities, besides deriving the additional benefit resulting from parental advice and tuition. The Literary and Philosophical society for publick debates and lectures, founded in 1811, is an association of great respectability, and exerts a considerable influence upon the literary character of the city. This society has a valuable museum attached to it, and a large collection of rare and curious birds which are in a fine state of preservation. The Charleston library is one of the largest and most valuable city libraries in the Union. The Mechanicks' institute or lyceum is an association for the diffusion of popular and useful knowledge, and has a library of several thousand volumes. The Banking institutions of the city are numerous, and, for the facilities of trade, are placed upon the most liberal footing. There are three daily and tri-weekly newspapers published, "the Courier," "the Mercury," and "the Patriot," and one monthly magazine entitled, "the Southern Literary Journal."

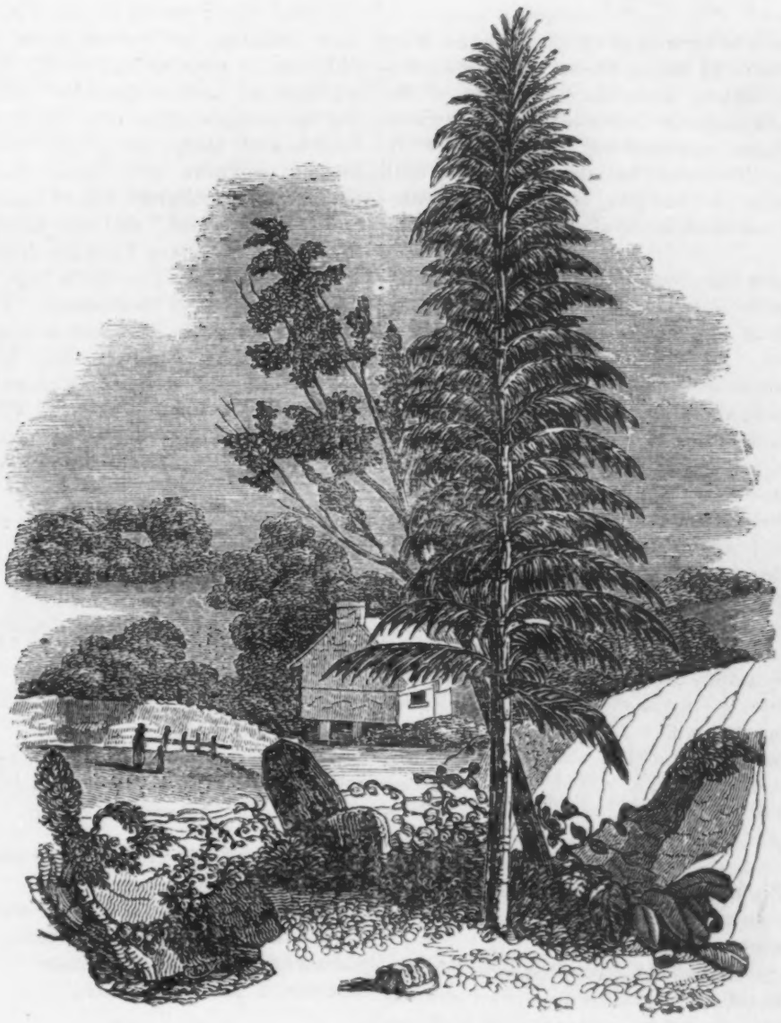
Charleston is, upon the whole, an agreeable and desirable place of residence. The affection of the native citizens for the spot is unextinguishable, and strangers who make it their home, soon become greatly attached to it. In a moral, literary, religious and commercial point of view, Charleston possesses advantages which entitle it to a high rank among the principal cities of our country.

POPULATION OF THE UNITED STATES, IN 1836.

THE population of the United States, at the present time, may be approximatively estimated as follows:—

Maine, the northernmost,	555,000
New Hampshire, south of Maine,	300,000
Vermont, bordering Canada,	330,000
Massachusetts, most densely peopled,	700,000
Rhode Island, with the least territory,	110,000
Connecticut, the most agrarian,	220,000
Aggregate of the northeastern states,	2,315,000
New York, the most populous,	2,400,000
New Jersey, the thoroughfare state,	360,000
Pennsylvania, the banking state,	1,600,000
Delaware, the narrowest state	80,000
Maryland, the water state,	500,000
Aggregate of the middle states,	4,040,000
Virginia, the largest state,	1,360,000
North Carolina, the modest state,	800,000
South Carolina, the Palmetto state,	650,000
Georgia, the southeasternmost,	620,000
Aggregate of the southern states,	3,430,000
Ohio, the thrifty state,	1,300,000
Kentucky, the bagging state,	8,00,000
Indiana, the improving state,	550,000
Illinois, the prairie state,	320,000
Michigan, the lake state,	120,000
Missouri, the northwesternmost,	250,000
Aggregate of the western states,	3,340,000
Tennessee, the central state,	900,000
Louisiana, the southwesternmost,	350,000
Alabama, the river state,	500,000
Arkansas, the least populous,	70,000
Aggregate of the southwestern states,	2,220,000
District of Columbia,	50,000
Florida, with the most extensive coast,	50,000
Wisconsin territory,	20,000
Oregon, or the Far West,	5,000
Indians,	400,000

The entire population within the limits of the United States, Indians included, amounts, therefore, to sixteen millions, six hundred and eighty thousand souls.



[The Silver-Fir.]

AMERICAN TREES.

THE coldest regions of North America are the native country of this species of spruce. In the United States, Canada, and Nova Scotia, it is called *Silver-Fir*, *Fir-Balsam*, and *Balsam of Gilead*. It does not constitute masses of woods, but is disseminated, in a greater or less abundance, among the hemlock and black spruces. Farther south it is found only on the summit of the Alleganies, and particularly on the highest mountains of North Carolina. Like the other spruces it generally flourishes best in a moist sandy loam.

Its height rarely exceeds forty feet, with a diameter of twelve or fifteen inches. The trunk tapers from a foot in diameter at the surface of the ground to seven or eight inches, at the height of six feet. When standing alone, and developing itself naturally, its branches, which are numerous and thickly garnished with leaves, diminish in length in proportion to their height, and form a pyramid of perfect regularity. The bark is smooth and delicate. The leaves are six or eight lines long, and are inserted singly on the sides and on the top of the branches; they are narrow, rigid and flat, of a bright green above and a silvery white beneath; whence probably is derived the name of the tree. It flowers in May, and is followed by cones of a fragrant odour, which are nearly cylindrical, four or five inches long, an inch in diameter, and always directed upward. The seeds are ripe in autumn, and if permitted to hang late will fall apart and scatter themselves.

The wood of the silver-fir is light and slightly resinous, and the heart is yellowish. It is sometimes used for the staves of casks for packing fish; but for this purpose many other kinds of wood are preferred. The resin of the pines is extracted by means of incisions in the body of the tree, at which it exudes from the pores of the bark and from the sap vessels of the alburnum. In the silver-fir this substance is naturally deposited in vesicles on the trunk and limbs, and is collected by bursting these tumours and receiving their contents in appropriate vessels. This resin is sold in Europe and the United States under the name of *balm of Gilead*, though every body knows that the true balm of Gilead is produced by the *Amyris gileadensis*, a very different vegetable and a native of Asia; perhaps the name has been borrowed in consequence of some resemblance between the substances in taste and smell. The fresh turpentine is a greenish transparent fluid of an acrid penetrating taste; given inconsiderately it produces heat in the bladder, and applied to wounds it causes inflammation and acute pains. It has been highly celebrated in England, and is recommended in certain stages of the pulmonary consumption.

Brown.

THE RUNAWAY.

NEVER shall I forget the impression made on my mind by the *rencontre* which forms the subject of this article, and I even doubt if the relation of it will not excite in the mind of my reader emotions of varied character.

Late in the afternoon of one of those sultry days which render the atmosphere of the Louisiana swamps pregnant with baneful effluvia, I directed my course towards my distant home, laden with a pack consisting of five or six wood-ibises, and a heavy gun, the weight of which even in those days when my natural powers were unimpaired, prevented me from moving with much speed. Reaching the banks of a miry *bayou*, only a few yards in breadth, but of which I could not ascertain the depth, on account of the muddiness of its waters, I thought it might be dangerous to wade through it with my burden; for which reason, throwing to the opposite side each of my heavy birds in succession, together with my gun, powder-flask, and shot-bag, and drawing my hunting-knife from its scabbard, to defend myself, if need should be, against alligators, I entered the water followed by my faithful dog. As I advanced carefully and slowly, "Plato" swam around me, enjoying the refreshing influence of the liquid element that cooled his fatigued and heated frame. The water deepened, as did the mire of its bed; but with a stroke or two I gained the shore.

Scarcely had I stood erect on the opposite bank, when my dog ran to me, exhibiting marks of terrour, his eyes seeming ready to burst from their sockets, and his mouth grinning with the expression of hatred, while his feelings found vent in a stifled growl. Thinking that all this was produced by the scent of a wolf or bear, I stooped to take up my gun, when a stentorial voice commanded me to "stand still, or die!" Such a "*qui vive*" in these woods was as unexpected as it was rare. I instantly raised and cocked my gun; and although I did not yet perceive the individual who had thus issued so peremptory a mandate, I felt determined to combat with him for the free passage of the grounds. Presently, a tall, firmly-built negro emerged from the bushy underwood, where, until that moment he must have been couched, and in a louder voice repeated his injunction. Had I pressed the trigger, his life would have instantly terminated; but observing that the gun, which he aimed at my breast, was a wretched rusty piece, from which fire could not readily be produced, I felt little fear, and therefore did not judge it necessary to proceed at once to extremities. I laid my gun at my side, tapped my dog quietly, and asked the man what he wanted.

My forbearance, and the stranger's long habit of submission, produced the most powerful effect on his mind. "Master," said he, "I am a runaway. I might perhaps shoot you down; but God forbids it, for I feel just now as if I saw him ready to pass his judgment upon me for such a foul deed, and I ask mercy at your hands. For God's sake, do not kill me, master!" "And why," answered I, "have you left your quarters, where certainly you must have fared better than in these unwholesome swamps?" "Master, my story is short, but a sorrowful one.—My camp is close by, and as I know you cannot reach home this night, if you will follow me there, depend upon *my honour* you shall be safe until the morning, when I will carry your birds, if you choose, to the great road."

The large intelligent eyes of the negro, the complacency of his manner, and the tones of his voice, I thought, invited me to venture; and as I felt that I was at least his equal, while, moreover, I had my dog to second me, I answered that I would *follow him*. He observed the emphasis laid on the last words, the meaning of which he seemed to understand so thoroughly, that, turning to me, he said, "There, master, take my butcher's knife, while I throw away the flint and priming from my gun!" Reader, I felt confounded: this was too much for me; I refused the knife, and told him to keep his piece ready, in case we might accidentally meet a cougar or bear.

Generosity exists every where. The greatest monarch acknowledges its impulse, and all around him, from his lowliest menial to the proud nobles that encircle his throne, at times experience that overpowering sentiment. I offered to shake hands with the runaway. "Master," said he, "I beg you thanks," and with this he gave me a squeeze, that alike impressed me with the goodness of his heart, and his great physical strength. From that moment, we proceeded through the woods together. My dog smelt at him several times, but as he heard me speak in my usual tone of voice, he soon left us, and rambled around as long as my whistle was unused. As we proceeded, I observed that he was guiding me towards the setting of the sun, and quite contrary to my homeward course. I remarked this to him, when he with the greatest simplicity replied, "merely for our security."

After trudging along for some distance, and crossing several *bayous*, at all of which he threw his gun and knife to the opposite bank, and stood still until I had got over, we came to the borders of an immense cane-brake, from which I had, on former occasions, driven and killed several deer. We entered, as I had frequently done before, now erect, then on "all fours." He regularly led the way, divided here and there the tangled stalks, and wherever we reached a fallen tree, assisted me in getting over it with all possible care. I saw that he was a perfect Indian in the knowledge of the woods, for he kept a direct course as precisely as any "red-skin" I ever travelled with. All of a sudden he emitted a loud shriek, not unlike that of an owl, which so surprised me, that I once more instantly levelled my gun. "No harm, master, I only give notice to my wife and children that I am coming." A tremulous answer of the same nature gently echoed through the tree-tops. The runaway's lips separated with an expression of gentleness and delight, when his beautiful set of ivory teeth seemed to smile through the dusk of evening that was thickening around us. "Master," said he, "my wife, though black, is as beautiful to me as the president's wife is to him; she is my queen, and I look on our young ones as so many princes:—but you shall see them all, for here they are, thank God!"

There, in the heart of the canebrake, I found a regular camp. A small fire was lighted, and on its embers lay broiling some large slices of venison. A lad nine or ten years old was blowing the ashes from some fine sweet potatoes. Various articles of household furniture were carefully disposed around,

and a large pallet of bear and deer skins seemed to be the resting-place of the whole family. The wife raised not her eyes towards mine, and the little ones, three in number, retired into a corner, like so many discomforted rackoons: but the runaway, bold and apparently happy, spoke to them in such cheering words, that at once, one and all seemed to regard me as one sent by Providence to relieve them from all their troubles. My clothes were hung up by them to dry, and the negro asked if he might clean and grease my gun, which I permitted him to do, while the wife threw a large piece of deer's flesh to my dog, which the children were already caressing.

Only think of my situation, reader! Here I was, ten miles at least from home, and four or five from the nearest plantation, in the camp of runaway slaves, and quite at their mercy. My eyes involuntarily followed their motions, but as I thought I perceived in them a strong desire to make me their confidant and friend, I gradually relinquished all suspicion. The venison and potatoes looked quite tempting, and by this time, I was in a condition to relish much less savoury fare; so, on being humbly asked to divide the viands before us, I partook of as hearty a meal as I had ever in my life.

Supper over, the fire was completely extinguished, and a small lighted pine-knot placed in a hollowed calabash. Seeing that both the husband and wife were desirous of communicating something to me, I at once and fearlessly desired them to unburden their minds; when the runaway told me a tale of which the following is the substance:—

About eighteen months before, a planter was residing not very far off, having met with some losses, was obliged to expose his slaves at a publick sale. The value of the negroes was well known, and on the appointed day, the auctioneer laid them out in small lots, or offered them singly, in the manner which he judged most advantageous to their owner. The runaway, who was well known as being the most valuable next to his wife, was put up by himself for sale, and brought an immoderate price. For his wife, who came next, and alone, eight hundred dollars were bidden and paid down. Then the children were exposed, and, on account of their parents, brought high prices. The rest of the slaves went off at rates corresponding to their qualifications.

The runaway chanced to be purchased by the overseer of the plantation; the wife was bought by an individual residing about a hundred miles off, and the children went to different places along the river. The heart of the husband and father failed him under this dire calamity. For awhile he pined in deep sorrow under his new master; but having marked down in his memory the names of the different persons who had purchased each dear portion of his family, he feigned illness, if indeed he whose affections had been so grievously blasted, could be said to feign it, refrained from food for several days, and was little regarded by the overseer, who felt himself disappointed in what he had considered a bargain.

On a stormy night, when the elements raged with all the fury of a hurricane, the poor negro made his escape, and, being well acquainted with all the neighbouring swamps, at once made directly for the canebrake, in the centre of which I found his camp. A few nights afterward, he gained the the abode of his wife, and the very next after their meeting, he led her away. The children one after another he succeeded in stealing, until at last the whole objects of his love were under his care.

To provide for five individuals was no easy task, in those wilds, which, after the first notice was given of the wonderful disappearance of this extraordinary family, were daily ransacked by armed planters. Necessity, it is said, will bring the wolf from the forest. The runaway seems to have well understood the maxim, for under night, he approached his first master's plantation, where he had ever been treated with the greatest kindness. The house-servants knew him too well not to aid him to the best of their power, and at the approach of each morning, he returned to his camp with an ample supply of provisions. One day, while in search of wild fruits, he found a bear dead before the muzzle of a gun, that had been set for the purpose. Both articles, he carried to his home. His friends at the plantation managed to supply him with some ammunition, and in damp and cloudy days, he first ventured to hunt around his camp. Possessed of courage and activity, he gradually became more careless, and rambled farther in search of game. It was on one of these excursions, that I met him, and he assured me that the noise which I made in passing the *bayou*, had caused him to lose the chance of killing a fine deer, "although," said he, "my old musket misses fire sadly too often."

The runaways, after disclosing their secret to me, both rose from their seat, with eyes full of tears. "Good master, for God's sake, do something for us and our children," they sobbed forth with one accord. Their little ones lay sound asleep in the fearlessness of their innocence. Who could have heard such a tale without emotion? I promised them my most cordial assistance. They both sat up that night to watch my repose, and I slept close to their urchins, as if on a bed of the softest down.

Day broke so fair, so pure, and so gladdening, that I told them such heavenly appearances were ominous of good, and that I scarcely doubted of obtaining their full pardon. I desired them to take their children with them, and promised to accompany them to the plantation of their first master. They gladly obeyed. My ibises were hung around their camp, and, as a memento of my having been there, I noticed several trees, after which I bade adieu, perhaps for the last time, to that canebrake. We soon reached the plantation, the owner of which, with whom I was well acquainted, received me with all the generous kindness of a Louisiana planter. Ere an hour had elapsed, the runaway and his family were looked upon as his own. He afterward repurchased them from their owners, and treated them with his former kindness; so that they were rendered as happy as slaves generally are in that country, and continued to cherish that attachment to each other which had led to their adventures. Since this event happened, it has, I have been informed, become illegal to separate slave-families without their consent.

Audubon.

Philosophy and Religion show themselves in no instance so much as in the preserving our minds firm and steady.

A SUMMER UPON THE PRAIRIE.

"About one o'clock on the evening of the eighth of June, the bright waters of the Platte river could be seen in the distance, rolling on in the direction of the mighty Missouri. A march of ten miles brought us to its banks, near which the command halted for the night. We had hardly pitched our tents when several Indians were discovered galloping towards us. The arrival of several Ottoe chiefs announced our proximity to their village, from which we were distant about ten miles. They had previously been advised of our approach and had come out as a delegation of their tribe to meet us and bid us welcome to their village. Upon their signifying their intention to camp with us for the night, and accompany the command on the morrow, they were invited to seat themselves and partake of our fare. This invitation was accepted with little unnecessary ceremony, and indeed it might be, for it is doubtful whether either of our guests had tasted fish, flesh, or fowl, for a month previous. For some length of time, beef, bread and coffee disappeared from before them as if by magick. The repast having been finished they now betook themselves to their pipes and canne co-nick* and after exhausting all topicks of conversasion, they quietly rolled themselves in their blankets to dream of the morrow.

At nine o'clock in the morning of the ninth, we took up our line of march for the Ottoe village. We had not proceeded more than five miles, before we were literally surrounded by Indians; some dressed from head to foot in all the gaudy colours of the rainbow; while others could boast of nothing but a small piece of cloth or strouding about the loins. The deficiency of clothing, however, was generally made up in red paint, with which they were completely covered, giving them much the appearance of men destitute of their skins. Many of their horses had evidently been decorated for the occasion, some with eagles' feathers tied to their tails, foretop and mane, with a scalp hanging from the bits of the bridle, and their bodies fantastically coloured with various kinds of paint.

As soon as the command came in sight of the village, the male Indians, old and young, were seen rushing out to meet us. Those who could raise a horse of any description were mounted; while those who could not, hastened toward us on foot. On passing their village the confusion became general: the tops of their dirt-houses were literally covered with women and children, while a thousand meager, half-starved dogs kept up an incessant yell below. Two miles west of the village we encamped.

The Ottoe village is situated about one mile from the right bank of the Platte river, upon a beautiful bluff, or second bank. It commands a full view of the surrounding country and the river, with its hundreds of islands covered with cotton wood and willow. The Elk-horn, a large stream falling into the Platte near its junction with the Missouri, can also be seen stretching off to the northwest, its banks studded with timber, until the dark green line which marks its course is lost in the distance. Much military skill is displayed, both in the location and internal arrangement of this village, the credit of which belonged to the chief of the Ottoes, Jutan.

Their lodges are built in a conical form, both in and above the ground; the ground appears, in the first instance, to have been excavated to the depth of from two to three feet. The roof is supported by several sticks of timber which are forked at the top; these are from ten to fifteen feet long, and so arranged as to form a circle. Upon the forks of these timbers other timbers are arranged along poles, one end resting upon the ground and the others coming together at the top, forming a conical framework.—Upon this framework a netting of willows, bound together by strips of bark, is placed. Over the whole, dry grass is thrown, to prevent the dirt from falling through. The roof is then covered with dirt to the thickness of from two to three feet. These lodges are from fifty to seventy-five feet in diameter. The fire is built in the centre, the smoke escaping through the aperture left for the purpose at the top. Around the fire mattresses, manufactured from willows or rushes, are placed upon the ground, which serve as apologies for chairs. A camp-kettle or two, together with a few spoons made of wood or buffalo's horns, complete the furniture of the Ottoe mansion.

The chief Jutan is at this time, probably, the most noted and popular Indian belonging to any tribe under the protection of our government. His stature is somewhat above the ordinary size, and well-proportioned. His countenance indicates much good humour, while a peculiar twinkling of the eyes stamps upon him at once his true character—that of the cunning, artful, intriguing warriour. His successive warfares with the neighbouring tribes, in former days, bear ample evidence that he is not destitute, either of personal courage or a knowledge of Indian warfare and its tacticks.

In the fall of 1822, Jutan sustained a severe loss in the death of his favourite among six wives. She was young and beautiful, and accompanied him the year previous to Washington, where she of course attracted much attention, and received many presents, all of which Jutan attributed to her personal charms. At her death, he refused to be consoled; the whole nation was put in mourning by blacking the upper part of the face of every man, woman and child. After the usual time of howling and crying before interment, she was consigned to the earth. A deep grave was dug upon a prominent hill, a short distance from the village, in which she was deposited, together with every article belonging to her while living, including many articles of great value, which had been presented to her at Washington city. The grave was then filled in the usual manner, after setting several strong posts in it, around which the earth was thrown. This being completed, Jutan ordered three of his best horses to be made fast to the posts, and choked to death, which was accordingly done. One of the horses was intended to convey the diseased favourite to the distant and happy land for which she had departed, while the other two were to convey her goods and chattels." Army and Navy Chronicle.

*This is a substance used by all Indians in the place of tobacco for smoking. It is either the bark of a young willow, sumach leaves, after having been killed by the frost in the fall, or a kind of weed, found only in the vicinity of the Rocky mountains, called mountain-tea.

It is possible to have almost all the qualifications for happiness, yet to feel little less than misery.

[Americus Vespucius.]

BIOGRAPHY.

AMERICUS VESPUCIUS.—Born, 1451—Died, 1514.

AMERICUS VESPUCIUS, or more properly Amerigo Vespucci, a Florentine gentleman, from whom America derives its name, was born March 9, 1451, of an ancient family. His father, who was an Italian merchant, brought him up in this business, and his profession led him to visit Spain and other countries. Being eminently skilled in all the sciences subservient to navigation, and possessing an enterprising spirit, he became desirous of seeing the new world, which Columbus had discovered in 1492. He accordingly entered as a merchant on board the small fleet of four ships, equipped by the merchants of Seville and set out under the command of Ojeda. The enterprise was sanctioned by a royal license.

According to Amerigo's own account he sailed from Cadiz, May 20, 1497, and returned to the same port, October 15, 1498, having discovered the coast of Paria and passed as far as the gulf of Mexico. If this statement is correct, he saw the continent before Columbus; but its correctness has been disproved, and the voyage of Ojeda was not made until 1499, which Amerigo calls his second voyage, falsely representing that he himself had the command of six vessels. He sailed May 20, 1499, under the command of Ojeda, and proceeded to the Antilles islands, and thence to the coast of Guiana and Venezuela, and returned to Cadiz in November 1500. After his return, Emanuel, king of Portugal, who was jealous of the success and glory of Spain, invited him to his kingdom, and gave him the command of three ships to make a third voyage of discovery. He sailed from Lisbon, May 10, 1501, and ran down the coasts of Africa as far as Sierra Leone and the coast of Angola, and then passed over to Brazil in South America, and continued his discoveries to the south as far as Patagonia. He then returned to Sierra Leone and the coast of Guinea, and entered again the port of Lisbon, September 7, 1502.

King Emanuel, highly gratified by his success, equipped for him six ships, with which he sailed on his fourth and last voyage, May 10, 1503. It was his object to discover a western passage to the Molucca islands. He passed the coasts of Africa, and entered the bay of All Saints in Brazil. Having provision for only twenty months, and being detained on the coast of Brazil by bad weather and contrary winds five months, he formed the resolution of returning to Portugal, where he arrived June 14, 1504. As he carried home with him considerable quantities of the Brazil wood, and other articles of value, he was received with joy. It was soon after this period, that he wrote an account of his four voyages. The work was dedicated to Rene II. duke of Lorraine, who took the title of the king of Sicily and who died December 10, 1508. It was probably published about the year 1507, for in that year he went from Lisbon to Seville, and King Ferdinand appointed him to draw sea-charts with the title of chief pilot. He died at the island of Tercera in 1514, aged about sixty-three years, or agreeably to another account, at Seville, in 1512.

As he published the first book and chart, describing the new world, and as he claimed the honour of first discovering the continent, the new world has received from him the name of *America*. His pretensions, however, to this first discovery, do not seem to be well supported against the claims of Columbus, to whom the honour is uniformly ascribed by the Spanish historians, and who first saw the continent

in 1498. Herrera, who compiled his general history of America from the most authentick records, says, that Amerigo never made but two voyages, and those were with Ojeda in 1499 and 1501, and that his relation of his other voyages was proved to be a mere imposition. This charge needs to be confirmed by strong proof, for Amerigo's book was published within ten years of the period assigned for his first voyage, when the facts must have been fresh in the memories of thousands. Besides the improbability of his being guilty of falsifying dates, as he was accused, which arises from this circumstance, it is very possible, that the Spanish writers might have felt a national resentment against him for having deserted the service of Spain. But the evidence against the honesty of Amerigo is very convincing. Neither Martyr nor Benzoni, who were Italians, natives of the same country, and the former of whom was a contemporary, attribute to him the first discovery of the continent. Martyr published the first general history of the new world, and his epistles contain an account of all the remarkable events of his time. All the Spanish historians are against Amerigo. Herrera brings against him the testimony of Ojeda as given in a judicial inquiry. Fonseca, who gave Ojedo the license for his voyage, was not reinstated in the direction of Indian affairs until after the time, which Amerigo assigns for the commencement of his first voyage. Other circumstances might be mentioned; and the whole mass of evidence it is difficult to resist. The book of Amerigo was probably published about a year after the death of Columbus, when his pretensions could be advanced without the fear of refutation from that illustrious navigator. But however this controversy may be decided, it is well known, that the honour of *first* discovering the continent belongs neither to Columbus nor to Vespucci, even admitting the relation of the latter; but to the Cabots, who sailed from England. A life of Vespucci was published at Florence by Bandani, 1742, in which an attempt is made to support his pretensions. Belknap.

CRUISE OF THE VINCENNES.

We have the pleasure to lay before our readers the following particulars of the recent cruise of the United States' ship Vincennes, John H. Aulick, Esq., commander, in the Pacifick and Indian oceans. The details will be found of much interest and will amply compensate the reader for the time devoted to them.

It will be recollected that the Vincennes sailed from this port on the sixth of November, 1833, and has been absent from the United States two years and seven months.

The Vincennes having been engaged for several months in the usual duties of a cruiser on the western coast of South America, took leave of the squadron at Callao, on the twenty-first of July, 1835, and touching at Payta, took her departure on a cruise through Polynesia and the East Indies.

On the seventeenth of August following, she made the Marquesas, and early the next day anchored at Nukahia, one of the Washington group, where, during her stay, she was visited by the natives, whom she found to be in general well disposed towards our countrymen, and eager in the traffick with ships for such necessaries as the island can furnish. Proceeding from the Washington islands to Tahiti, she anchored first at Matavai bay; and afterward at Papiete, the residence of Queen Pomare. Here she reciprocated civilities with the authorities, and renewed the friendly assurances which preserve to our traders the advantages of a resort where supplies are plentiful and the harbours singularly convenient and secure.

Arriving next at the Friendly islands, the Vincennes anchored at Port Refuge, Vavaoo, a spot seldom visited by ships of war, but a favourite rendezvous for whalers after a long cruise. Several whale-ships were already at anchor, and it was learned that the island was under good regulations, ably enforced by an intelligent and energetick ruler, so that the advantages of the harbour could, for the future, be enjoyed without the risk of violence from the natives, to whom rapine was, a short time since, unhappily familiar. After a delay long enough to produce such impressions as it was desirable to cultivate, the ship proceeded to the Navigator's islands, at one of which, (Otewhy,) a part of the crew of the whale-ship Wm. Penn, had lately been cut off. Having approached within a few miles of Otewhy, the ship was disguised to prevent premature alarm, and soon received a visit from the natives. These were all detained on board, while an armed force of seamen and marines was sent ashore, with orders to take, alive or dead, the chief Popetano, who had committed the outrage upon the Wm. Penn's boats, or, in case of his escape, to burn all the property, which could be ascertained to belong to him. Landing in obedience to these orders, the party proceeded, under the guidance of a European resident, several miles into the interiour, searching the villages through which they passed for the criminal, but carefully avoiding all violence towards those who had not been engaged in the murder. During these proceedings, no interruption was experienced from the natives, who were themselves frequent sufferers from the aggressions of this same Popetano, and seemed generally desirous to be relieved of his presence; he had, however, taken the alarm, and made his escape into the interiour of the island, so that after a fruitless search of several hours, his houses were reduced to ashes, and his property destroyed wherever it could be found. Having effected this end and taken other measures to ensure a friendly reception to any ships that may in future visit the island, the Vincennes took leave of Otewhy, in the confidence that the punishment which had been inflicted on a real aggressor had not been productive of better effects than the justice with which the innocent had been carefully exempted from the smallest share of it.

Touching at Wallis's island for supplies of water, the ship proceeded next to Kotumah, and, after a short delay there, to the Ladrone islands, with the principal of which, (Guam,) she communicated. From Guam she continued towards the Pelew islands, which were made on the twenty-sixth of November so that on the following day she was visited by canoes from Corrol, famous as the territory of Abe Thule, the kind entertainer of Captain Wilson and the father of Prince Le Boo.

It may be necessary to mention that the Pelew islands are surrounded by a reef which makes out to sea, with a current running around it so rapidly, that vessels which unwarily approach too near the land in a light breeze are sometimes carried among the breakers and wrecked. This accident lately befell the ship Mentor, Captain Bernard, which was cast away on a shoal to the northward of Babelthoop, when the crew betaking themselves to the boats, were afterward captured by the natives in their canoes, and three of them detained, Captain Bernard and six others being permitted to depart. It was to rescue these men that the Vincennes went to the Pelew islands.

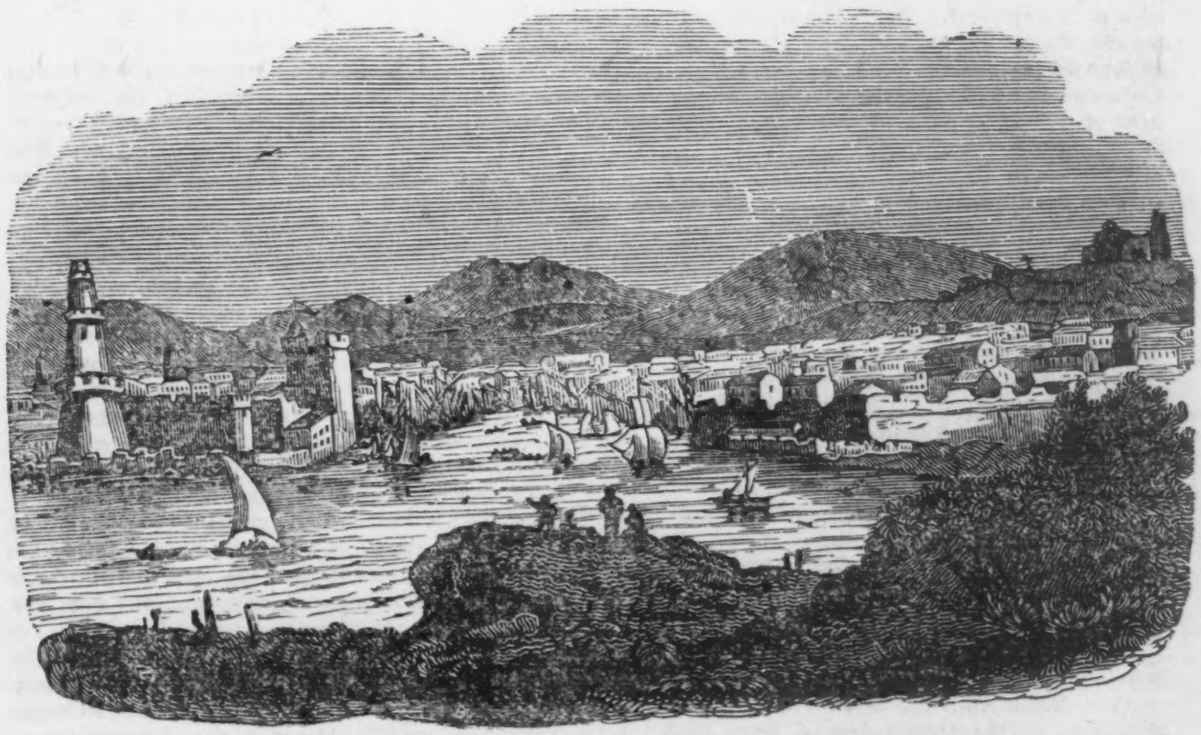
Upon anchoring at Corrol, information was received that two out of the three Americans were still at Aracolon, and a demand being sent for them, answer was returned that they were hostages for three chiefs who had gone away with Captain Bernard to receive certain presents which had been promised to the natives for their services in facilitating his departure from the island. This accorded with an account which had been previously obtained of Captain Bernard's having been thrown upon Lord North's island, and escaping thence, leaving a number of men behind. The Vincennes accordingly sailed for Lord North's island, where she arrived on the 9th of December, and found one of the Pelew chiefs, who was in ill health, and gave an account of the nine who landed there, saying that two had been taken off by ships in passing, while all the rest except himself had died. An armed party being landed the next day to search the island found confirmation of this story, and the ship returned with the recovered chief to the Pelew islands.

Uupon her arrival at Carrol an expedition was fitted out consisting of one hundred and twenty-two officers and men, who proceeded to Aracolon, and after an absence of four days, returned to the ship, having recovered Meader and Davis in exchange for the Pelew survivor.

From these islands the Vincennes proceeded to Lintin, when, as soon as her arrival was announced to the authorities she received the usual whimsical order to depart immediately, which was of course honoured with as little attention as "Old China Customs" have generally commanded. Leaving Lintin she touched at Singapore, and on the 16th of February, arrived at Qualla Battoo, where remaining several days, she exchanged salutes and friendly visits with the Rajah, and, it is hoped, contributed to the re-establishment of the good understanding which had been temporarily interrupted by the affair of the ship Friendship and the consequent visit of the frigate Potomack.

From Qualla Battoo she had a prosperous voyage of thirty-nine days to the cape of Good Hope, whence she returned to the United States by the way of St. Helena.

Norfolk Beacon.



[View of Marseilles.]

AMERICAN COMMERCE.

Marseilles, an ancient French city, the capital of the department Bouches du Rhône, and the principal French port in the Mediterranean, is situated at the gulf formed by the mouth of the Rhône, and its harbour is capable of accommodating more than two hundred vessels at a time. In addition to this there has been a new port recently constructed sufficiently large to receive ships of the line, the other being only capable of admitting frigates.

Marseilles, considered by many the finest city of France, is discovered at the distance of a league on

the land-side, from the height called La Viste, in the form of a crescent, only by the masts and Flags of the ships of various nations. The approach to it by a spacious avenue lined with trees and well-built houses detached from each other, gives promise of a splendid city. On the left, a rich landscape opens, thickly studded with country-houses; on the right is the long roadstead, crowded with ships, its sides indented with a curious and picturesque diversity, with the isles of If, Pomegues, and Ratoneau; and, in the distance, the Mediterranean sea. Marseilles is composed of the old and new towns; the latter forming two thirds of the whole, elegantly built, and several houses bearing marks of the chisel of the celebrated sculptor Puget. There is an academy, library, museum, garden of plants, and an observatory, built by the Jesuits in the last century. This is one of the most interesting establishments of the town. The style of structure is simple, and the situation admirable, commanding the port with its forests of masts and rigging, the boundless sea, and the country like one cultivated garden or ornamental landscape, over which are spread the beautiful country-houses called bastides. The most distinguished edifice is the hotel de ville, or town-hall, built by Puget; its fascade ornamented with bass-reliefs in white marble, and the arms of France, surmounted once more by the Royal crown, after having been displaced by the cap of liberty, which gave way in its turn to the crown imperial. The sculptured escutcheon of France is considered a chef d'œuvre, and is said to have excited the admiration of Bernini on his first arrival in France. The Lazaretto is a vast enclosure on the coast, to the northwest, and only a short distance from the town. The aspect of the port from the top of the hill which joins the new boulevards, formerly called "Montagne Bonaparte," is one of the most picturesque that can be imagined; presenting the costumes of every nation—Turks, Greeks, Jews, Dutch, English, Russian—merchants, sailors, porters, moving and mingling with prodigious activity. When approached very near, however, much of the enchantment vanishes, from the brutality of the sailors and porters, the fumes of brandy and tobacco, and sometimes the still more offensive exhalations of the port, which is protected from the winds, and consequently stagnant. These exhalations do not, however, it appears, affect the publick health, or even offend the sense of those who are habituated to them. A singular phenomenon occurred in the beginning of 1812: the waters suddenly retreated from the port, leaving the vessels stranded in the dark, muddy, and fetid bottom—a fearful spectacle. The inhabitants looked on the consternation, which became still more dreadful when, after the lapse of half an hour, the waves returned with a furious roaring, dashed against the quays, threatened to inundate the town, and then resumed their usual limits and tranquillity, leaving all the ships uninjured and afloat.

The exchange is not striking as a building, but presents a scene of remarkable activity and curious grouping. It opens and closes, at the striking of the clock, by beat of drum. The arsenal is admired, but rather from the want of comparison with edifices of a high order. The fishmarket-hall, built by Puget, and a new market-house, with a handsome Tuscan colonnade, strike the spectator more agreeably. The cathedral church, supposed to be the oldest in France, has little else to distinguish it. The theatre, facing a new and beautiful street, is one of the best built in France, at least out of Paris. The streets and places in the new town are well designed, spacious, and elegantly built, with flagged footpaths—a distinction in France, at least in the provinces. The line of building from the gate of Aix, by which Marseilles is entered by the Paris road through the town, to the rue de Rome, by which it is entered from the opposite or Italian road, has both grandeur and beauty. The "courses," forming the intermediate parts of this line within the town, present a remarkable and picturesque coup d'œil on Sundays, when it would seem as if Marseilles disgorged its whole population into them.

The favourite excursion by water is to the château d'If, a castle and prison on a small island at the mouth of the harbour, which had amongst its prisoners Mirabeau, before the revolution, and after it the duke of Orleans (Egalité) and his younger son. This castle, in the centre of the harbour, on the central and largest of the three islets, defends the harbour, by its batteries. The commerce of Marseilles, essentially maritime, embraces the southern coast of France, the Levant, the coasts of Italy, Spain, Africa, the ports of the Mediterranean and Atlantick, the French settlements in the West and East Indies. Its manufactures are chiefly tobacco, printed goods, hats, glass, porcelain, china, soap, coral, &c. The common people preserve in their physiognomy and manners no trace of their Grecian or Roman origin, or antique civilization: they are harsh-looking, impetuous, and rude; but brave, frank, and kind. The discrepance between the manners of the people, and the mildness and beauty of the climate and the country, is ascribed by some philosophical observers to the "mistral," a parching cold northeast wind, which blows with great violence, and produces the most painful effects upon the skin and nerves. When this wind does not blow, the winter is as mild as spring elsewhere.

The city of Marseilles has about one hundred and twenty thousand inhabitants, and it is one hundred and eighty miles S. by E. of Lyons, and three hundred E. N. E. of Bourdeaux. Lon. 5° 24′ E., lat. 43° 17′ N.

LION HUNT.

The following description of a lion-hunt, in South Africa, was furnished to the editor of the Boston Atlas, by Mr. Hardy, one of the Boston company, who has just returned from that part of the globe. It presents a new illustration of American enterprise: Mr. Hardy having been one of a company sent to Africa, to procure from their native hunts, the wild animals of that country, for the purpose of exhibition in the United States.

"We started at six in the morning, accompanied by two Dutch boors and four Hottentots, all well armed, and each man on horseback. We travelled for about ten miles through a wild and arid district without meeting any game, but shortly after having gone that distance, one of the Hottentots, being a little in advance, informed us in a whisper and with the most animated gestures, that there was a lion ahead.

[Portrait of a Lion.]

We immediately prepared for action; obeying implicitly the directions of the boors; they being experienced hunters. Using great caution, we approached to within about two hundred yards of a small bush, and there, partly screened by it, we beheld an immense lion, in an attitude of repose. We immediately dismounted and tied our horses together (a custom generally pursued on these occasions to keep them from running) and then proceeded forty or fifty yards nearer. The noble animal lay perfectly quiet, surveying our motions very composedly and apparently wholly unconscious of our hostile intentions.

"Having reached to within about one hundred and fifty yards of him, two of our company stepped to the front and fired together, the rest reserving the fire to be ready in case of accident. The lion wounded severely, but not killed, immediately rushed towards us with inconceivable fury and rapidity —he covered a space of thirty feet, as we afterward perceived at one bound. We suffered him to get within ten or twelve feet of us, and then as he was about to make his last leap, poured upon him the contents of all our pieces. He staggered, fell, and in about a quarter of an hour expired. He was the largest and the most magnificent creature of the kind I ever saw, full grown and with a mane black as jet reaching most to the ground.

"We stripped him of his skin and then proceeded homeward. After travelling for about an hour, on a route different from that we came, we fell in with a drove of gnus, or horned horses—there were certainly not less than one thousand in number. We put our guns in order, and were soon in the midst of them. They are the most beautiful animals, running at large on their native plains, the eye ever beheld. No adequate idea can be formed of their appearance from what one sees of them in a domesticated state. We killed two full grown, and caught three young ones, of about a month old each. The usual method of hunting them is by riding directly into the herd: the old ones take flight, leaving their young in the rear, which then fall an easy prey. After being captured two or three hours, they become so tame that they will follow the horse of the hunter. When the latter reaches his domicil, he places them with his goats, and they speedily become domesticated. We reached the house of one of these boors about sunset, with our lion's skin, and our guns, much pleased with our excursion, and without having suffered any mishap. It is rare that a day's sport of this kind terminates so happily."

AN INDIAN COUNCIL.

In the autumn of 1830, the writer was present a a council of Indian chiefs, held in the gardens of Government House, at Toronto, the capital of Upper Canada. It had been convoked by the lieutenant-governour of the province, (Sir J. Colborne,) for the purpose of ascertaining the sentimentsof the tribes with respect to a contemplated allotment of land in certain fixed portions to families among them, with the view

of inuring them to settled modes of life. Early in the morning, the chieftains of the forest were seen wending their way, in full attire, towards the government-house. A double circle of seats had been arranged in the open air before the entry, and here the chiefs, to the number of forty, were seated; on the landing to the flight of steps leading to the entry was placed a table, behind which stood his excellency surrounded by his staff in full uniform; at the table a secretary was sitting; and around, beyond the circle of seats, was drawn up a guard of honour, of the seventy-first highlanders, in their national dress. The attire of the chiefs, for the most part, was fantastick in the highest degree, that is, according to *our* notion, for we may be sure that the sedateness and sobriety which really characterize them, would by no means have us consider them ridiculous A very prevalent head-dress was a gaudy handkerchief lapped turbanwise, to which, behind, was appended a plume of hawk or turkey feathers, while ponderous clusters of silver ornaments (large crosses in many instances) dragged down the rims of their ears, which, in their infancy had been slit entirely round for the purpose. For this sort of decoration they have a peculiar liking: they exult in an exuberant display of tinsel trappings attached to every possible part of their person. Some, however, wore the ordinary modern beaver, which becomes them when the rest of their attire is consistent, as was the case in many at this time, who appeared noble figures in their light surtouts, trousers, and Wellingtons. Still, many adhered to the regular chief's costume, the head bare, the hair long and sleek, a tunick of blue cloth, with worsted sash about the waist, cloth leggings, edged at the sides with embroidery of porcupine-quills, and buckskin moccasins ornamented in a similar manner, broad silver armbands, a medal, bearing the king's head, suspended like a gorget at the throat, the tomahawk and knife.

Each chief stood as he spoke; the delivery and tone of each was very similar; the language highly musical, running along like a low simple Scottish air, regularly dropping at the close of each sentence with a frequent but not monotonous cadence; the interpreter, a young man, stood uncovered at his excellency's left, with two assistants and correctors. His attitude was admirable: he stooped slightly forward, his eyes fixed towards the ground, both hands raised; the picture of attention, while another was speaking—of sincerity and disinterestedness when he himself spoke. The little action employed in speaking was graceful, consisting principally in waving the hand; they seldom lifted the eye, and scarcely appeared to move the lip. None seemed abashed, or at a loss for words. They addressed his excellency by the title of "brother," (every sentence began with this,) while the king himself they spoke of as "father." All appeared to acquiesce in the proposal which was made to them respecting the land, but were shrewd in hinting that they must have every thing secure *upon paper*, for the sake of their children and relatives. All expressed grateful feelings towards their father, who had sent his excellency to them, and declared that they should maintain their attachment to him as long as the sun shone, the waters ran, till the Son of man came again upon the earth, &c. This last was a frequent allusion. One only was the representative of an unconverted tribe. Among the anomalies in the group, were to be seen an excessively corpulent Indian, (a very rare sight,) another with spectacles; another with an umbrella. One was named "Echo," from the sweetness of his voice; another, "Twenty-Canoes." On the interpreter's delivering any sentiment of his excellency which particularly pleased them, they expressed their approbation by their honest laconick "hu!" breathed out *ab imo pectore*—equivalent, doubtless, to our "hear! hear! hear!" Notwithstanding the idea of pithy brevity, which is usually attached to Indian speeches, the English language expresses in half a dozen words what seems to take them a hundred, the cause of which is, their words are so immeasurably long—*sesquipedalia verba*, with a vengeance. I heard an old chief, who once roundly taxed his interpreter with not delivering one half of what he had expressed. At the time of the council we are now speaking of, Brandt,* the famous Indian chief, was in the city, but dangerously ill. Allusion was made to him by one of his brother chiefs, evidently with no very kindly feeling; by many of them, doubtless, his refinement was deemed either degeneracy or arrogance. When the council had ended, long tables, covered with every variety of refreshments, were spread upon the lawn, to which the group adjourned. The officers of the regiment, and gentlemen attracted to the spot by the novelty of the scene, performed the honours as well as the services of the table. The knife, fork, and spoon, (those unwonted implements,) were used with considerable ease and activity by the guests; and every thing, with the exception of some unfashionable mixtures, as raisins with cold beef, custard with mince-pie, &c. passed off with as much propriety as could be expected. The wives (or squaws, as they are called) of some of the chiefs were present, but merely as lookers-on. During the banquet they kept at a respectable distance. Some of the gentlemen present, however, gallantly carried to them some little delicacies from the tables, with which they regaled themselves with no little apparent satisfaction, under the neighbouring trees. The opportunity was seized for sketching several of the characters assembled on this occasion; they were aware what the artist was engaged in, and several good-humouredly consented (though only requested by signs) to remain, after the close of the feast, for the more complete finish of the sketches. In turning over his portfolio, they were wonderfully amused at recognising their brother chiefs. On another occasion, while a young friend of the writer was enriching his sketch-book with figures from a group of Indians before him, one of them brought him a humorous caricature of himself, in the act of sketching, scratched on a broad stone. This memorial of "savage" waggery, of course, he treasured up. X.

The world is but one great family. What then is this narrow selfishness in us, but relationship remembered against relationship forgot?

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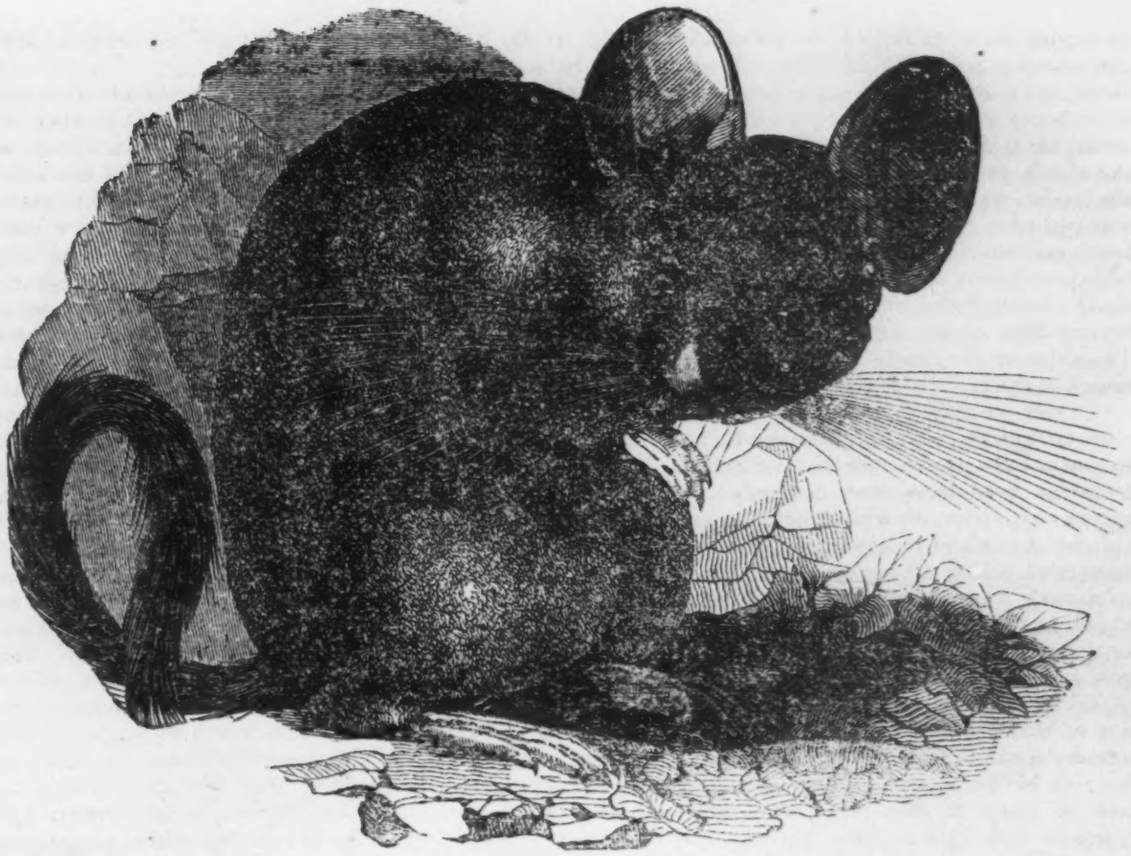
* Brandt, of Brant-ford, was returned a member for one of the western townships. The writer has frequently seen him in the House of Assembly of Upper Canada; a tall full-blooded Indian, but most gentlemanly in his manners. The poor fellow was swept off by the cholera, in 1832.



[The Chinchilla.]

THE CHINCHILLA.

Chinchilla lanigera.

The cool, but fertile slopes of the Cordilleras of Chili and Peru are the native regions of this interesting and useful animal. Here they are entrapped by the needy inhabitants, in great numbers, for the sake of their skins; which, as our fair readers will be aware, form the softest and most beautiful of our winter furs. We shall describe its form and structure, its habits and instincts, its uses, and the relation it bears to other animals. In doing this, we may be allowed to remark, that it is only by such a comprehensive consideration of the objects of natural history, that any real or useful knowledge of them can be attained. Form and structure can only be properly understood by a comparison of similar forms in others; and, as form and structure are subservient to habits, instincts, and uses, being the means by which they are developed, the instruments by which they act; so neither ought they ever to be investigated apart, but always with the closest regard to each other. We have before us an animal living in the countries at the western feet of the Andes of South America, which feeds upon succulent roots, and, without any weapons of defence, exists safely and happily in the face of many enemies.

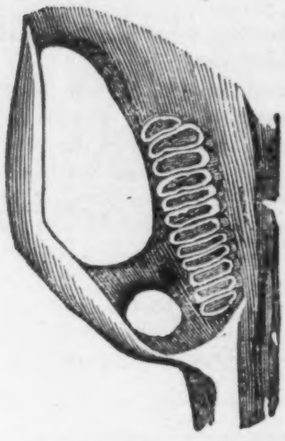
The chinchilla is about eight inches long, from the nose to the commencement of the tail which measures five inches. Its general form is characterized by shortness, thickness, and an aptitude for repose. Its hind limbs are much larger than the fore ones, and, by an ignorant spectator, would be proclaimed disproportionally large, while the latter would be regarded as much too small. There is, however, no such thing as "disproportion" in nature. The head resembles, in some degree, that of a rabbit, with round, naked, and very capacious ears, large dark-coloured eyes, and a blunt nose. The whiskers are long and plentiful. The fore feet possess much of the character of a hand, and have each four short toes, and the rudiment of a thumb; the hinder feet have also four, three of them long, the middle one more produced than the two lateral ones, and the fourth, external to the others, very short, and placed far behind. On all these toes the claws are short, and nearly hidden by tufts of bristly hair. The tail is strong for the size of the animal, of equal thickness throughout, and covered with long bushy hair. The fur is long, thick, close, woolly, somewhat entangled, of a mottled-ash colour, whitish on the belly, but varying in strength and colour in different parts of the body, and in different individuals.

The teeth consist of two short sharp-edged incisors in each jaw, and four grinders on either side, making twenty in all. The grinders are composed of three bony plates, divided by two partitions of enamel, and the whole surrounded by a thick coating of the same. The structure of these being very curious, we have much pleasure in presenting our zoological friends with the accurate figures of them, from original drawings, which may be found on the next page.

These structures are so exclusively adapted to peculiar habits of life, and under different modifications are so common in allied families—the rats, squirrels, &c., for example—that without the testi-

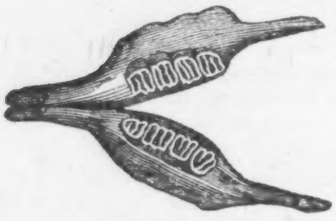
[Under view of the scull, showing the upper teeth.]

[Profile, showing the lower teeth]



[One row of upper teeth, larger than the preceding, to show their structure.]

[Profile, showing the same.]



[Jaw, showing the lower teeth.]

[Ditto of lower jaw.]

mony of actual experience, they might with very tolerable accuracy be conjectured. We recommend such a practice as one highly conducive to sound zoological knowledge. Particular forms are so surely indicative of corresponding habits, that out of a series of such predictions very few would be found to disagree with the written history.

An attentive consideration of the form and structure of the chinchilla, will, therefore, have prepared the intelligent reader to anticipate the following account of its habits :—

It lives in a cold, stony, and uneven country: accordingly its fur protects it against the severity of the seasons, and enables it to enjoy a life of comparative quietude ; while the length and strength of its hind quarters, legs, and tail, give it the power of leaping easily over the irregularities of the surfaces on which it seeks its food. It rests and sleeps in a burrow made by itself. The necessity for this is found in the number of its natural enemies, in the slightness of its form, and in its greater susceptibility to cold while at rest or asleep, than in its waking hours, which a thick coat of fur enables it to counteract. The ability to meet this exigency of burrowing, is seen in the shape of its fore paws, which have very much the form of hands, and in the shortness of its arms. The former enables it to rake the earth away, and the latter by their shortness, allow the earth to be cast behind the body, while at the same time they offer no obstruction to the subterranean progress of the animal. In this way it is protected from the raven by day, the jaguar by night, and the cold at all times. Further, it feeds chiefly upon the roots of succulent vegetables. Here again its burrowing feet are necessary; but when the favourite root has been procured, they serve another and very important office. Our readers may have observed that a mouse, a rat, a squirrel, and many similarly-formed animals, eat their food by a *gnawing* process, during which, they sit upright upon their haunches, hold the food in their paws, and in that position nibble it. Now the structure of the teeth of the chinchilla is such, that it cannot well take its frugal meals in any other manner; accordingly when a bulb, or other root, has been dug up, the little fellow comfortably seats himself, and taking it into his "hands," turns it in any suitable direction, and gnaws off a bit here, and a bit there, to the full satisfaction of his appetite. This adaptation of the various members of its body to the purposes required of them, is very pretty, and evidently the contrivance of a most BENEFICENT Being. The food in the mouth is subjected to a severe grinding between its curiously-enamelled teeth, and sent to a

stomach fitted to receive it in that state, and in no other.

The immense size of its smooth ears allows it to catch the most distant sounds; and the largeness of its eyes gives a corresponding power of vision, which, in ordinary cases, sets the craftiness of its enemies at defiance. The ear gives notice of danger—it may be in the horizon, or on the far-off mountain-top, but no matter, the excited eye perceives it, and a few rapid bounds brings the frightened creature to its burrow.

It is a clean, timid, and docile animal, and, in its native wilds, is fond of society. It produces a litter of five or six young ones, twice in the year.

Its structural forms and instinctive habits may be seen, greatly exaggerated, in the kangaroos and opossums, and as much diminished in the Guinea pigs and rats. Jerboas, mice, squirrels, beavers, and the like, exhibit intermediate relations. The analogies observable between these animals are extremely interesting, and shed mutual light on each other. They should be studied attentively.

[For the Family Magazine.]

TOUGRA, OR SIGNATURE OF THE GRAND SEIGNIOR.

THE exact derivation of the word *firman* is not exactly known; its signification, however, corresponds to the term *decree*. The lines seen at the head of this article, and which are termed tougra or nichan, are always placed at the commencement of the decrees of the Grand Seignior. In our days, this cipher (for it is composed of the name of the reigning sultan) is formed so as to contain these words: "*The emperour sultan Mahmoud, son of the sultan Abdul-Amid-Khan, always triumphant.*" It is generally written in gold, and differently coloured-inks. An officer named *nichandji*, (maker of *nichan*,) is attached to the Turkish court, and it is to him that the happy rajahs and mussulmans are indebted for the pleasure of contemplating this which is to them the sign of glory and happiness. Although it is not easy, in this labyrinth of letters, to trace the august names of his royal highness, yet the form of the cipher is easily recognised, and the Turks bow themselves before it, and scrupulously execute whatever is enjoined in the mandate containing it. This sign is in fact the decree: it is the sovereign himself, and to see it is to obey. After this mark, the decrees generally contain the following:—

"Behold the order of this glorious and imperial sign, the conqueror of the world; this noble and sublime mark, which the assistance of God renders efficacious!"

Next comes an enumeration of the titles and possessions of the sultan: "I, who, by the assistance and excellence of the infinite powers of the high and glorious God, and by the power of miracles, am the glorious sultan of sultans, the emperour of powerful emperours, the distributor of crowns to the Cosroes seated on their thrones, the shade of God in the two earths, the keeper of the two cities of Mecca and Medina, illuminated with celestial rays, the most noble and the most illustrious of all cities and places," &c.

The firman then proceeds to enumerate the different provinces and cities which are under the power of the sultan—and then we find: "I, the emperour, the asylum of justice, and the king of kings, centre of victory, the sultan, son of a sultan, the emperour N, son of the sultan N: I, who am by my power, the origin of happiness, emperour of two earths, and to fill up the measure of the greatness of my khalifat, am rendered illustrious by the title of emperour of two seas." Alas! for the sultan, his power is declining.

THE OLD MAN'S CAROUSAL.

BY JAMES K. PAULDING.

DRINK, drink, whom shall we drink!
A friend or a mistress? Come let me think.
To those who are absent, or those who are here?
To the dead that we loved, or the living still dear!
Alas! when I look, I find none of the last;
The present is barren, let's drink to the past.

Come! here's to the girl with the voice sweet and low,
The eye all of fire and the bosom of snow,
Who erewhile in the days of my youth that are fled,
One slept in my bosom, and pillow'd my head!
Would you know where to find such a delicate prize?
Go seek in the churchyard, for there she lies.

And here's to the friend, the *one* friend of my youth,
With a head full of genius, a heart full of truth,
Who travell'd with me in the sunshine of life,
And stuck to my side in sorrow and strife!
Would you know where to find a blessing so rare?
Go drag the lone sea you may find him there.

And here's to a brace of twin-cherubs of mine,
With hearts like their mother's, as pure as this wine,
Who came but to see the first act of the play,
Grew tired of the scene, and so both went away.
Would you know where this brace of bright cherubs have hied?
Go seek them in heaven, for there they abide.

A bumper, my boys! to this gray-headed pair,
Who watch'd o'er my childhood with tenderest care,
God bless them, and keep them, and may they look down
On the head of their son, without tear, sigh, or frown!
Would you know whom I drink to—go seek midst the dead,
You will find both their names on the stone at their head.

And here's—but alas! the good wine is no more,
The bottle is emptied of all its bright store;
Like those we have toasted, its spirit is fled,
And nothing is left of the light that is shed.
Then, a bumper of tears, boys! the banquet here ends,
With a health to our dead, since we've no living friends.

Southern Lit. Messenger.

USEFUL ARTS.

MILL-WORK.

Under this head we purpose noticing the simplest combinations of wheel-work which are employed in the construction of mills, and, under the articles Wind and Water Mills, complete views, both graphick and descriptive, will be given of their construction.

The business of a millwright is usually combined with the practical part of engineering, and much of the wind and water power, formerly employed in giving motion to machinery, is now superseded by the introduction of the steam-engine.

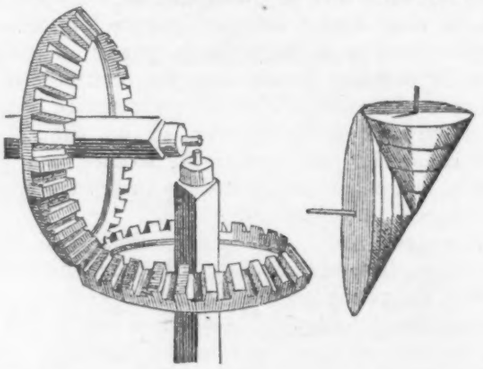
So, that on account of the great importance of the steam-engine as a prime mover, it will be advisable to devote a commensurate space to its illustration.

Various are the methods by which motion may be communicated from one part of a machine to another; and much of the skill of the millwright consists in his adapting certain methods to his particular purposes. Sometimes a simple cord, or a cord with pulleys, may be used. Levers, either simple or combined, are employed to communicate and also change the direction of the motion. Rods are also employed, which may be carried to a great distance by being connected together. But, of all the methods of communicating motion, that by means of wheels is the most frequent. Wheels may be made to turn each other even by the simple contact of their surfaces when pressed together; or their circumferences may be formed into brushes with short thick hair, which enable them to turn each other with considerable force; or they may have cords, or straps of leather, or chains, passing from one to another; and at other times there are points of protuberances on the rims of the wheels. The most usual method, however, of making wheels drive each other, is by means of teeth. These are either cut into the substance of which the wheel is composed, when it is of metal; or formed at the same time as the rest of the wheel, when it is cast.

The proper method of shaping the teeth of wheels, so as to communicate the motion equally, and with as little friction as possible, is a matter of very great nicety, and has given rise to much study among mechanicks. The ends of the teeth should be curves, but not parts of complete circles. They may be formed of the curve called the epicycloid; or of the involutes of circles, which are curves described by a point of a thread which has been wound round the wheel while it is uncoiled.

A wheel which has teeth cut upon the circumferences, so as to project out in the plane of its face, is called a spur-wheel; and, when the projection of the teeth is at right angles to the face of the wheel, and parallel of the axis, the wheel is called a crown or contrate wheel. Sometimes the faces of the two wheels are in the same plane, and consequently the axes are parallel; and at other times the axes are at right angles to each other, one being a spur and the other a contrate-wheel.

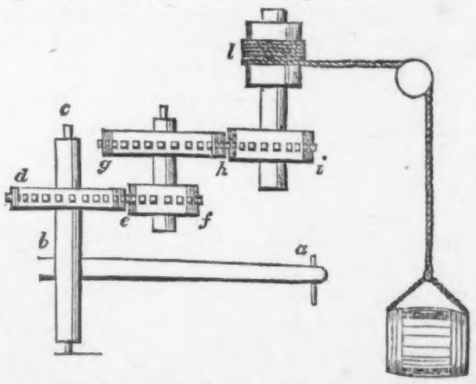
There is a mode of placing the teeth frequently resorted to, which consists in levelling the edge of the wheel, and cutting the teeth on the level, by which they may turn in each other, though variously inclined, and the teeth have also great strength. Their principle consists in two cones rolling on the surface of each other, as in the accompanying small engraving; if their bases are equal, they will perform their revolutions in one and the same time.



If the cones are fluted, or have teeth cut in them diverging from the centre, they are then called *bevel geer*. The teeth may be made of any dimension, according to the strength required; and it is of great use to communicate a motion in any direction, or to any part of a building. The bevel geer represented in the left-hand figure must be supported by a frame at the point where the pivots intersect each other. The frame is usually formed of iron or wood, and when the latter is employed the pivot-hole is of brass. The perpendicular shaft should always be made to revolve on a sharp point in the centre.

Hook's universal Joint, may be applied to communicate motion instead of bevel geer, where the speed is to be continued the same, and where the angle does not exceed thirty or forty degrees and the equality of motion is not regarded; for, as it recedes from a right line, its motion becomes very irregular. This joint may be constructed by a cross, or with four pins fastened at right angles upon the circumference of a hoop, or solid ball. It is of great use in cotton-mills, where the tumbling shafts are continued to a distance from the moving power.

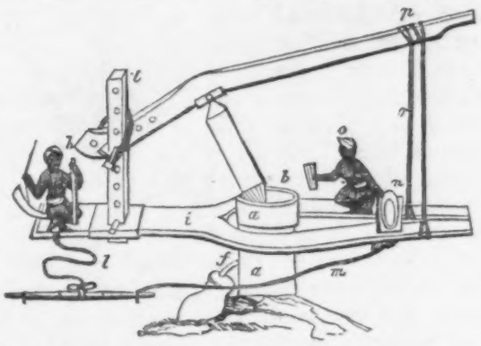
The employment of animal power in the simplest species of mill-work may be well illustrated by the accompanying sketch, in which a horse may be attached to a long lever, and thus made to raise a weight by a train of wheels and pinions.



The weight to be raised is suspended by a rope or chain which winds round the drum *l*. On the same axis is placed a wheel, *i*, actuated by another wheel, *g h*. The wheel *d e* gives motion to the whole by the intervention of the small wheel at *f*. A horse at *a* may be considered as the prime mover, as the lever *a b* is on the axis *c*. Now, in this apparatus there is a loss of power, but a gain in velocity.

There is a mill of a cheap and effective kind used

in many parts of the East, which appears to have suggested the use of the ordinary snuff-mill. Indeed, it is in some respects, superiour to it. This mill, which is employed in the preparation of sugar, consists of a mortar, beam, lever, pestle, and regulator, as represented in the engraving beneath :—



The mortar *a a*, is a tree about ten feet long, and fourteen inches over, which is sunk in the earth, so as to leave about two feet above ground. At the top is formed a conical cavity like a funnel, which ends in a hollow cylinder, with a hemispherical projection at the bottom, in order to allow the juice to run freely to the small opening that conveys it to a spout, *f*, from which it runs into an earthen pot. Round the upper mouth of the mortar is a circular cavity, *b*, which serves to collect any of the juice that may run over from the upper end of the pieces of cane. A channel is cut to convey this juice down the outside of the mortar to the spout, *f*.

The beam, *i*, is about sixteen feet long, and six inches thick, and is cut from any large tree that is divided by a fork into two arms. A hollow circle is made in the fork by the mortar, round which the beam turns horizontally : the surface of this excavation is secured by a semicircle of some strong wood ; the other end of the fork is left quite open, in order that the beam may be changed without any trouble. The bullock driver sits on the undivided end, to which the cattle are yoked by a rope, *l*, from his end of the beam ; and they are kept in the circular tread by another rope, *m*, which passes from the yoke, of the forked end of the beam. A basket, *n*, is placed upon the forks to hold the cuttings of the cane, and the man, *o*, who feeds the mill, sits between this basket and the mortar. He takes care to place the pieces of cane sloping down the cavity of the mortar, just at the time the pestle comes round ; and, after the pestle has passed, he removes those which have been squeèzed.

The lever, *p*, is a piece of timber nearly as long as the beam. The thickest end, which is also the lowest, is connected with the undivided end of the beam by means of a regulator, *t*. A little way from the place where it is joined to the regulator, a piece of very hard wood is mortised into the lower side of the lever, and a smooth conical hollow is made in this piece, to receive the head of the pestle. The end of the lever furthest from the regulator, is fastened by two ropes to the two arms of the beam.

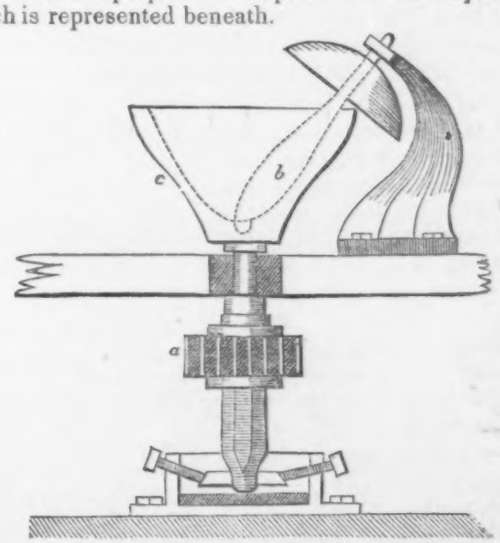
The pestle is a strong cylindrical piece of timber, cut to a point at each end. The upper end is a smooth cone, the lower end a pyramid of twelve to fifteen sides, at the point of which is a short cylinder. As the pestle is placed obliquely, it rubs strongly against the sides of the mortar as it passes round ; and its cylindrical point rubs also on the top of the hemispherical projection, *d*, which is in the bottom of the cavity of the mortar.

The regulator, *t*, is a strong square of timber, which passes through the undivided end of the beam, and is secured below it by part of its circumference being left for cheeks. It is pierced by eight holes, and a pin is placed in the lowest hole, to prevent the regulator from falling when the strain is removed.

The canes with which the mill is supplied are cut into pieces, six inches long. The mill goes night and day during crop-time, and presses about fifty-six pots and two hundred and eighteen gallons of juice in that time. Two bullocks are used at a time, and as they are driven very fast, they are changed every time three pots of juice are expressed, and work no more that day.

In the manufacture of snuff in this country the grinding is performed by a loaded pestle, made, to turn round as it rubs against the sides of a cast-iron mortar, the pointed lower end of the pestle being retained in its place by a hole at the bottom of the mortar. In large manufactories, a number of these mortars are placed in a circle, having a large toothed wheel in the centre ; surrounded by as many upright spindles with pinions to work in the wheel.

Mr. Gill has proposed an improvement on the plan, which is represented beneath.



The mortar, *c*, is in this arrangement made to revolve, and the pestle, *b*, is supported by a bracket firmly attached to the beam beneath. The pinion, *a*, rests on a conical axis, and communicates, as in the old arrangement, with the principal driving wheel.

Water-mills are of three kinds :—*breast-mills undershot-mills and overshot-mills*, according to the manner in which the water is applied to the great wheel. In the first, the water falls down upon the wheel at right angles to the *float-boards*, or bucket, placed to receive it. In the second, which is used where there is no fall of water, the stream strikes the float-boards at the lower part of the wheel. In the third, the water is poured over the top, and is received in buckets arranged round the wheel.

A less quantity of water will turn an overshot-mill (in which the wheel has buckets instead of float boards) than a breast-mill, where the fall of water seldom exceeds half the height of the wheel so that, when there is but a small quantity of water

and a fall great enough for the wheel to lie under it, the bucket, or overshot-wheel, is always used: but, where there is a large body of water with a small fall, the breast or float-board must be used. Where the water runs only upon a small declivity, it can act but slowly upon the under part of the wheel, in which case the motion of the wheel will be slow; and therefore the floats ought to be very long, that a large surface of water may act upon them, so that what is wanting in velocity may be made up in power; and then the cog-wheel may have a greater number of cogs in proportion to the rounds in the trundle, in order to give the millstone a sufficient degree of velocity.

It was the opinion of Smeaton that the powers necessary to produce the same effect on an undershot-wheel, must be to each other as the numbers 2. 4. 1.75, and 1.

Wind, which we may consider as the next substitute for animal power, appears to have been first employed to give motion to machinery in the beginning of the sixth century. The use of this species of mechanical force is however principally limited to the grinding of corn, the pressing of seed, and other simple manipulations. The great irregularity of this element precluding its application to those processes which require a continued motion.

A windmill with four sails, measuring seventy feet from the extremity of one sail to that of the opposite one, each being six feet and a half in width, is capable of raising nine hundred and twenty-six pounds two hundred and thirty-two feet in a minute, and of working on an average eight hours per day. This is equivalent to the work of thirty-four men, twenty-five square feet of canvass performing the average work of a day-labourer. A mill of this magnitude seldom requires the attention of more than two men; and it will thus be seen that, making allowance for its irregularity, wind possesses a decided superiority over every species of animal labour.

The following very important errours have frequently been made by mathematicians and practical mechanicks, in the estimation of the force of the wind or the water on oblique surfaces; they have generally arisen from inattention to the distinction between pressure and mechanical power. It may be demonstrated that the greatest possible pressure of the wind or water on a given oblique surface at rest, tending to turn it in a direction perpendicular to that of the wind, is obtained when the surface forms an angle of about 55° with the wind; but that the mechanical power of such a pressure, which is to be estimated from a combination of its intensity with the velocity of the surface, may be increased without limit by increasing the angle of inclination, and consequently the velocity. The utmost effect that could be thus obtained would be equal to that of the same wind or stream acting on the float-boards of an undershot-wheel: but, since in all practical cases the velocity is limited, the effect will be somewhat smaller than this: for-example, if the mere velocity of the sails or float-boards be supposed equal to that of the wind, the mechanical power will be more than four fifths as great as that of an undershot-wheel; that is, in the case of a windmill, more than four fifths of the utmost effect that can be obtained from the wind. In such a case, Maclaurin has shown that the sails ought to make an angle of 74° with the direction of the wind: but in practice it is found most advantageous to make the angle somewhat greater than this, the velocity of the extremities of the sails being usually, according to Mr. Smeaton, more than twice as great as that of the wind. It appears, therefore, that the oblique sails of the common windmill are in their nature almost as well calculated to make the best use of any hydraulick force as an undershot-wheel; and, since they act without intermission throughout their whole revolution, they have a decided advantage over such machines as require the sails or fans to be exposed to a more limited stream of the wind during one half only of their motion, which is necessary in the horizontal windmill, where a screen is employed for covering them while they are moving in a direction contrary to that of the wind: and such machines, according to Smeaton, are found to perform little more than one tenth of the work of those which are more usually employed. The sails of a common windmill are frequently made to change their situation according to the direction of the wind, by means of a small wheel with sails of the same kind, which turns round whenever the wind strikes on either side of it, and drives a pinion turning the whole machinery; the sails are sometimes made to furl or unfurl themselves according to the velocity of the wind, by means of a revolving pendulum, which rises to a greater or less height, in order to prevent the injury which the flour would suffer from too great a rapidity in the motion, or any other accidents which might happen in a mill of a different nature. The inclination of the axis of a windmill to the horizon is principally intended to allow room for the action of the wind at the lower part, where it would be weakened if the sails came too nearly in contact with the building, as they must do, if they were perfectly upright. When it is necessary to stop the motion of a windmill, a break is applied to the surface of a large wheel, so that its friction operates with a considerable mechanical advantage. Partington's Scientifick Gazette.

CULTIVATION OF COTTON AT THE SOUTH.

Good land is requisite for cotton. Each hand, if well managed, will cultivate eight or ten acres, and each acre should average one bale, (400 pounds.) Cotton planting requires the strictest attention. Most plantations employ an overseer, whose attention is directed to the crop, the management of the negroes, and the plantation affairs in general. Some planters raise their own corn; but the greater number depend upon the boats. Corn is planted in February, and can be once hoed, before it will interfere with the cotton-crop.

The ground is ploughed for cotton in March, and it is planted the last of the month, or early in April. It is planted in drills, which on ordinary land are six feet distant; on poor, less; and on rich land at a greater distance. When the land is thoroughly ploughed in regular rows, a small wooden plough makes a drill two inches deep; a hand follows, throwing seed into the drill as thickly as possible, at a quick walk; a small harrow follows, and covers the seed. In from two to six days, the young plants appear as thick as they can stand. They vegetate sim-

ilar to the garden bean, bringing the seed with the plant from the ground.

The process of scraping now commences. The "hoe gang," with broad hoes, scrape off the grass from the plants, leaving them in the form of a green line across the field. After scraping over the fields, they return to the first and begin again. Their business is to "hoe," and they know nothing else till August. When the plants are two or three inches high, they are "cut to a stand" which, for a time, gives to the field an appearance not badly represented by a closely picked *live goose.*

The hoe and plough, now work constantly, each division, endeavouring to drive the other. After the first few weeks, the plants grow rapidly. In six or eight weeks, the ground is obscured by the leaves, and the flowers appear. The bloom is one of the richest flowers. It is large, and when first opening, its petals are of the most delicate white, mellowing into yellow. On exposure, it becomes tinged with red, and passing through its various shades to a deep crimson, is shed on the third day.

A cotton-field, in full bloom, presents a scene seldom surpassed; the heavy green branches waving in the breeze, and disclosing the beautiful white flowers which seem to peep out and retreat, as if too modest to bear the face of day, while their fragrance fills the surrounding atmosphere.

In August, commences the "picking" season; every negro, who can carry a basket and bag, "takes the field." This is called the "first picking," there being only the lower balls open; but in another week, there is constant employment. The work is now incessant from morning to dark. There is something highly pleasing in witnessing the cotton-pickers, and perhaps as much of the *romantick* as in ordinary scenes. The first time I saw the cotton pickers employed, was just after rising from a sick bed. I had ordered my horse, and rode to the field to enjoy the morning of a beautiful September day. the sun was shining splendidly, and a gentle breeze from the south was playing among the tops of the tall green cotton, which were gracefully bending to receive its salute. I had seated myself in the refreshing breeze, upon an elevated ground, and was admiring the beauty of the surrounding scenery, when my ear caught the first note of one of the wild songs of the negroes. It was, as is their custom commencing by one voice, the others joining in the chorus; and the sound floating along the field, each as it reached him joined in the response, mingling the varied tones of fifty voices, distributed through a space of half a mile; and thus their mellow notes advanced, swelled and receded—dying away in the distance; then rising, varying, and swelling in fuller concert advancing up the field to the die again, while the voice of the first alone was heard in clear distinct sounds at the far side. No effect of vocal musick can exceed this of so many voices at such varied distances and positions; and when they are completely excluded from view by the tall cotton, not a living object seen—not another sound heard—the effect may be conceived, but not described. These songs continue with slight intermission, through the day; and tend to lighten the toil, which though not laborious, is constant through the picking season.

At noon, and again at night, the task of each is weighed. It is then carried to the scaffolds, and dried in the sun. Good pickers, will bring in two hundred and fifty pounds per day, which, when ginned, yields one third of its weight of cotton, two thirds the weight being seed.

ASCENT OF THE ANDES.

Don Juan de Ulloa, who went to Peru in company with the French academicians, to measure a degree of the meridian, gives the following curious description of his ascent of the Andes:—

"After many days sailing up the river Guayaquil, I arrived at Caracol, a town situated at the foot of the Andes. Nothing can exceed the inconveniences we had experienced in this voyage from the flies and moschetoes. We were the whole day in continual motion to keep them off, but at night our torments were excessive. Our gloves, indeed, were some defence to our hands, but our faces were entirely exposed; nor were our clothes a sufficient defence for the rest of our bodies, for the stings of these insects penetrating through the cloth, caused a very painful itching. One night, on coming to anchor near a very handsome house that was uninhabited, we were no sooner seated in it than we were attacked on all sides by swarms of moschetoes, so that it was impossible to have one moment's quiet. Those who had covered themselves with clothes made for this purpose found not the smallest defence; wherefore, hoping to find some relief in the open fields, they ventured out, although in danger of suffering in a more terrible manner from the serpents. Both places were equally obnoxious. On quitting this inhospitable retreat, we took up our quarters, the next night, in a house that was inhabited; the master of which being informed of the terrible manner we had passed the preceding night, told us gravely that the house we so greatly complained of had been forsaken on account of its being the purgatory of a soul; but we had more reason to believe that it was quitted on account of its being the purgatory of the body. After having journeyed upward of three days, through boggy roads, in which the mules sank knee-deep at every step, we

began at length to perceive an alteration in the climate; and after having been accustomed to heat, we now felt it grow very sensibly colder.

"It is remarkable that at Taraguagua we often see instances of the effects of two opposite temperatures in two persons happening to meet; one of them leaving the plains below, and the other descending from the mountain. The former thinks the cold so severe that he wraps himself up in all the garments he can procure, while the latter finds the heat so great that he is scarcely able to bear any clothes whatever. The one thinks the water so cold that he avoids being sprinkled by it: the other is so delighted with its warmth that he uses it as a bath.

"The ruggedness of the road from Taraguagua, leading up the mountain, is not easily described. The declivity is so great, in some parts, that the mules can scarcely keep their footing; and in others, the acclivity is equally difficult. The trouble of sending people before to mend the road, the pain arising from the many falls and bruises, and the being constantly wet to the skin, might be supported, were not these inconveniences augmented by the sight of such frightful precipices and deep abysses, as excite incessant terrour. The road in some places is so steep, and yet so narrow, that the mules are obliged to slide down, without making any use whatever of their feet except as a support. On one side of the rider, in this situation, rises an eminence of several hundred yards, and on the other is an abyss of equal depth, so that, if he should give the least check to his mule and thus destroy the equilibrium, they must both inevitably perish.

"Having travelled nine days in this manner, slowly winding along the side of a mountain, we began to find the whole country covered with a hoar frost, and a hut, in which we reposed, had ice in it. At length, after a perilous journey of fifteen days, we arrived upon the plain, at the extremity of which stands the city of Quito, the capital of one of the most charming regions in the world. Here, in the centre of the torrid zone, the heat is not only very tolerable, but in some places the cold is even painful. Here the inhabitants enjoy all the temperature and advantages of perpetual spring; the fields being constantly covered with verdure, and enamelled with flowers of the most lively colours. However, although this beautiful region be more elevated than any other country in the world, and it took up so many days of painful journey in the ascent, it is overlooked, nevertheless, by tremendous mountains —their sides covered with snow, while their summits are flaming with volcanoes. These mountains seem piled one upon the other, and rise to an astonishing height, with great coldness. However, at a determined point above the surface of the sea, the congelation is found at the same height in all the mountains. Those parts which are not subject to a continual frost, have here and there growing upon them a rush, resembling the Genista, or broom, but much softer and more flexible. Towards the extremity of the part where the rush grows, and the cold begins to increase, is found a vegetable with a round bulbous head, which, when dried, has an amazing elasticity. Higher still, the earth is entirely bare of vegetation, and seems covered with eternal snow. The most remarkable of the Andes are the mountains of Cotopaxi, Chimborazo, and Pichincha. On the top of the latter was my station for measuring a degree of the meridian, where I suffered particular hardships, from the intenseness of the cold, and the violence of the storms. The sky around us, in general, was involved in thick fogs, which, when they cleared away, and the clouds, by their gravity, moved nearer to the surface of the earth, appeared surrounding the foot of the mountain, at a vast distance below, like a sea encompassing an island in the midst of it. When this happened, the horrid noises of tempests were heard from beneath, then discharging themselves on Quito and the neighbouring country. I saw the lightning issue from the clouds, and heard the thunder roll far beneath me. All this time, while the tempest is raging below, the mountain-top where I was placed enjoyed a delightful serenity. The wind was abated, the sky clear, and the enlivening rays of the sun moderated the severity of the cold. However, this was of no very long duration; for the wind returned with all its violence, and with such velocity as to dazzle the sight, while my fears were increased by the dreadful concussions of the precipice, and the fall of enormous rocks, the only sounds that were heard in this frightful situation."

WHITE INDIANS.

I PERCEIVE an article is taking the rounds, headed "The White Indians," represented as residing between California and Santa Fe. The writer of this article has been in that section of that country, and heard of no such nation as that described as the Mawkees. The Nabahoes, or Navahoes, he has been among, but must represent as far different from the description given. Their government is purely republican—the habits of the people pastoral, and agricultural. They are (for Indians) far advanced in the arts, are more industrious, far more ingenious, &c., than their Mexican neighbours, and are much further advanced in the arts of civilized life; their mechanism appears (sui generis) singular in its kind, and savours more of Chinese or Indian origin. Their blankets are highly prized by the Mexicans, and sell at a high price. They are very chivalrous, and are considered the perpetual enemy of the Mexican-Spaniard, whom they treat with the utmost contempt. They have 30,000 warriours living in valleys, surrounded by inaccessible mountains, with narrow passes. They long bid defiance to the combined power of Mexico, making frequent excursions, capturing many Mexicans, with their horses. Prisoners, they make slaves of, and in return, the Mexicans make slaves of them, whenever taken captive. They are very ingenious and careful servants, are very uncouth—the structure of their heads gives them a very homely appearance; they are but little, if any lighter in complexion than any other Indians. Their mountain fastnesses were never penetrated by hostile feet until a few years past. The government of Mexico sent General Viscaire, one of their braves chieftains, against them; he penetrated to their strongest towns, and compelled them to sue for the first time for peace: still a predatory warfare is carried on between them and the Mexicans.

During the first revolution in Mexico, they sided

ever with the republican party. An American who was in Mexico, and who had a Mexican lady for his wife, formed the rallying point for the republicans in that quarter. The town in which he lived, being in a state of insurrection, was overpowered by the royalists; the American was thrown into prison, and his wife condemned to die. She, with three hundred other prisoners, appealed to a higher tribunal at old Mexico. They were then sent under an escort of 140 royalists. While the guard were at breakfast one morning, their mules broke away, and fled up the valley, and most of the guard imprudently went in pursuit, leaving their arms behind. This intrepid Amazon, from a distance discovered the advantage, ran among the captives, cut them loose, and called on them, if they were men, to save themselves and her. She placed herself at their head, and pressed forward in the retreat. The guard having armed and secured their horses, pressed the pursuit so close, that she turned off among the Navahoes. She collected a small band of warriours, took possession of the pass in the mountain, and then cut off the whole Spanish force. She returned to her husband, who was also triumphant. They were living in 1825 at Tous, on the Del Norte; her husband was engaged in the fur-trade. N. O. Bulletin.

REVOLUTIONARY REMINISCENCES.

The following interesting passage from a private journal, never before published, has been communicated to the Plattsburgh Republican. The author is a distinguished American traveller, who still lives to recall the proudly thrilling scene which he has so vividly sketched:—*New Yorker.*

EXTRACT FROM THE JOURNAL OF —— ——.

LONDON, *Thursday, Dec.* 4, 1782.—The great, the glorious day has arrived, when our unconditional *Independence* will be solemnly recognised by George III. in the presence of God and man. Such, at last, are the well-earned fruits of a sanguinary and eventful contest of eight long—*long* years, in which period one hundred thousand brave Americans have cemented, on the altar of their country, with their precious blood, a prize which will bless unborn millions, and in its eventual effects produce a new era over the entire surface of this benighted world.

At an early hour, in conformity to previous arrangements, I had the honour to be conducted, by the earl of Ferers, to the very entrance of the house of lords.

At the small door, he whispered softly into my ear: "*Get as near the foot of the throne as possible —maintain your position—fear not.*" I did so with all the assurance of a travelled yankee, and found myself exactly in front of the throne, elbow to elbow with the celebrated admiral Lord Howe, who had just returned from a successful relief of Gibraltar.

The ladies of the nobility occupied the lords' seats on the woolsacks, so called, as an emblem of the power and wealth of Old England, because that it has been mainly derived from wool. The lords were standing here and there promiscuously as I entered. It was a dark foggy day—a proper English hanging day. To add to its gloomy effects, the old Saxon windows stand high up, with leaden bars to contain the diamond cut panes of glass. The walls were also hung with dark tapestry, representing the defeat of the great Spanish Armada in 1588. I had the pleasure of recognising the celebrated American painters, West and Copley, and some American ladies in the group—all rebels at heart—intermixed with many American royalists, some of whom were my near relatives, with long dejected faces, and rage and despair depicted in every lineament of their features. How opposite were our feelings! After standing for two hours in painful suspense, the approach of the king was announced by a tremendous roar of cannon. He entered the same small door on the left of the throne, and immediately seated himself in the chair of state, decorated in his royal robes, in a graceful, formal and majestick posture, with his right foot resting on a stool. He was evidently agitated; and drew slowly from his pocket a scroll containing his humiliating speech. I was exactly in his front, six or eight feet distant, with my left foot braced upon the last step of the throne, to sustain my position from the pressure in my rear, and critically watched, with the eye of a Lavater, at that moment, every emotion of his agitated countenance. He began:—

"*My Lords and Gentlemen:*" and in direct reference to our independence said—"I lost no time in giving the necessary orders to prohibit the farther prosecution of offensive war upon the continent of North America.

"Adopting as my inclination will always lead me to do, with decision and effect, whatever I collect to be the sense of my parliament, and my people; I have pointed all my views and measures in Europe, as in North America to an entire and cordial reconciliation with the *Colonies.* Finding it indispensable to the attainment of this object, I did not hesitate to go the full length of the power vested in me, and therefore I now declare them"—(here he paused, and hesitated for a moment, and was in evident agitation—the pill he had to swallow in the next breath was repugnant to his digestive organs. In 1775, he repelled our humble petition with indignity —but in 1782, he found himself prostrate at our feet;) he recovered himself by a strong convulsive effort and proceeded thus:—"I declare them *free and independent states.* In thus admitting their separation from the crown of their kingdom, I have sacrificed every consideration of my own to the wishes and opinions of my people. I make it my humble and ardent prayer to Almighty God, that Great Britain may not feel the evils which might result from so great a dismemberment of the empire and that America may be free from the calamities which have formerly proved in the northern country how essential monarchy is to the enjoyment of constitutional liberty. Religion, language, interests, and affection may, and I hope will yet prove a bond of permament union between the two countries."

It is impossible to describe the sensations of my rebellious mind, at the moment when the king hesitated to pronounce the words—*free* and *independent!* and to notice with what a bad grace he had to swallow the dose: every artery was in full play, and beat high in unison with my proud American feelings.—It was impossible not to revert my eyes across the Atlantick and review in rapid succession, the miseries and wretchedness I had witnessed in several stages of the war, prior to my leaving

America—the wide-spread desolation, resulting from the obstinacy of this very man—turning a deaf ear to our humble appeals to his justice and mercy, as if a god—but now prostrate in his turn. In his speech he tells us in one breath that he has sacrificed every personal consideration, in other words, not yet satiated with innocent blood shed by his Indian allies; and in the next, hypocritically invoking high heaven to guard us against calamities, &c. The great drama is now closed—the ball was opened at Lexington, where the British red-coats were taught to dance down to Charlestown, to the tune of "Yankee-Doodle." On this occasion it fell also to my lot to march from Providence, R. I., with a company of seventy-five well-disciplined young men, all dressed in scarlet, on our way to Lexington, with packs on our backs; but they had fled before we could reach the scene of action.

From the house of lords, I proceeded to Mr. Copley's dwelling in Leicester-square, to dine; and, through my ardent solicitation, he mounted the American stripes on a large painting in his gallery the same day—the first which ever waved in triumph in England.*

In leaving the house of lords, I jostled in side by side with West and Copley—enjoying the rich political repast of the day, and noticing, with silent gratification, the anguish and despair of the tories.

In the house of commons, the ensuing day, there was not much debate, but a good deal of acrimony. Commodore Johnston attacked Lord Howe's expedition to Gibralter, because he had not gained a decisive victory over the combined fleet of forty-five sail of the line, with thirty-seven ships. Burke then rose, indulging in a vein of satire and ridicule, a severe attack on the king's speech the day previous on the subject of American independence—saying it was a farrago of nonsense and hypocrisy. Young Pitt, the newly created chancellor of the exchequer, then rose, and handled Burke with dignified severity, charging him with buffoonery and levity.

Having received from Alderman Wood a card of admission to the gallery of the house of commons, as the house was about rising, the Alderman (who is a member) came into the gallery and invited me to descend with him to the floor of the house. I met Mr. Burke, with whom I had breakfasted, who introduced me as a messenger of peace to Pitt, Conway, Fox, Sheridan, and two or three other members grouped on the floor. I never felt more elevated in my life.—In describing this scene to a friend in France, in a moment of exultation, I subjoined:—

"Figure to yourself, my dear friend, a young American traveller of twenty-four, in the full gaudy dress of a Parisian, hailed in the publick papers, and standing on the floor of the British house of commons, (where the destiny of dear America in its infancy has been so often agitated,) as a messenger of peace, surrounded by a group, the brightest constellation of political men that ever graced the annals of English history!—and, what is more gratifying to my American pride, the very men, with one exception, who have recently compelled the tyrant George to yield with a bad grace to all our just demands, in my presence! Not to have been thus affected at that tremendous crisis, I should have been more or less than a man."

* Note—1833—Dining frequently at Copley's I noticed an uncommon smart lad, who is now the celebrated Lord Lyndhurst, Lord Chancellor of England—the son of an American painter. His mother was a Miss Clark of Boston; his father, one of the tea consignees, a great tory—then residing with Copley.

INDIANS IN THE UNITED STATES.

We have taken pains to make out alphabetically, from official documents before us, a list of all the tribes within the American territory. Italics, are used in the names of tribes resident west of the Mississippi.—The number under the letter W., shows how many of the tribe named, have emigrated to the west of the river, and the number under the letter E., shows how many remains on the east—the whole corrected to February last, since which time to the present date, July 18th, 1836, not less than 5,000 have emigrated, or are in the act of doing so.

Names of tribes, &c.	*E.*	*W.*
Apalachicolas,	340	265
Arickaras, estimated not to exceed		3,000
Assinaboins,		8,000
Arepahas, Keawas, &c.		1,400
Black feet, along the upper Missouri, &c.		30,000
Caddoes, estimated at		800
Choctaws, west of the state of Arkansas and between Red river and the Canadian,	3,500	15,003
Chayennes, south of the Gros Ventres,		2,000
Camanches, on the confines of the republick of Texas, but there are supposed in the United States,		7,000
Cherokees, between lat. 30, and lat. 37, west of the Arkansas, and east of Texas lands,	10,000	5,000
Chicasaws, will have no lands allotted them,	5,429	
Chippewas,	6,793	
Chippewas, Ottowas, and Potawatomies,	8,000	
Crees, estimated at		3,000
Creeks, east of Texas, north of the Canadian, and along the north fork of the same,	22,668	2,459
Crow, estimated too high, we think at,		45,000
Delawares, north of the Kansas tribe,		826
Foxes, computed to be not exceeding		1,600
Gros Ventres, or Big Bellies, between the south fork of the Platte and Arkansas,		3,000
Indians of the state of New York,	4,716	
Indians from New York, at Green-bay, Michigan,	725	
Ioways, near the Missouri, and in the south of Wisconsin territory, in lat. 40°,		1,200
Kansas, on Kansas river, in lat. 39°,		1,471
Kickapoos, between the Delawares and the Missouri river, in lat. 39° and lon. 18°,	470	
Mandans, on the upper Missouri,		15,000
Menomonies, in Wisconsin territory,	4,200	
Minctarees, estimated, too high, we think, at		15,000

Osages, properly Wausawshies, on both sides of the Arkansas, lat. 37° 30′ lon. 20 to 21 west: they are north of the Cherokees,		5,420
Omahas, west of Council bluffs, between the Platte and the Missouri; lat. 42°,		1,400
Ottoes and *Missourias*, south of the Omahas,		1,600
Ottowas, in lat. 38° 30′, and lon. 18° west; south of the Shawanees,		200
Ottowas and Chippewas of lake Michigan,	530	
Pawnees, on Platte river, lat. 41–42°, and lon. 21–22°, west of Washington,		10,000
Peorias and Kaskaskias, east of, and adjoining the Ottowas,		132
Piankeshaws, on Osage river, east of, and adjoining the Peorias,		162
Poncas, estimated at		800
Potawatomies, in lat. 42°, east of the Missouri, and west of Des Moines river,	1,400	141
Quapaws, on the Neosho, near lat. 37° and lon. 18° west,		450
Sacs, in Wisconsin territory,		4,800
Sacs, of the Missouri,		500
Shawanees, south of the Kansas,		1,200
Senecas from Sandusky, south of Quapaws,		251
Senecas and Shawnees, do. do.		211
Seminoles, part now at the fork of the Canadian and its north fork, north of the Choctaw lands; east of the Creeks,	2,420	
Sioux, in Wisconsin territory,		27,500
Wyandots in Ohio and Michigan,	623	
Winnebagoes, on the Mississippi, in Wisconsin territory,	4,591	
Weas, with the Piankeshaws,	60	222
Totals,	76,465	216,063

Aggregate number of Indians, 292,528.

INDIAN TERRITORY.

THE following table exhibits, as nearly as we are able to say, at present, the number of square miles allotted to certain tribes, with the population of each, when all who remain on the east, shall have emigrated to the west of the Mississippi:—

TRIBES.	SQ. MILES.	POPULATION.
Choctaws,	23,440	18,503
Creeks and Seminoles,	20,531	27,547
Delawares,	3,450	826
Kaskaskias and Peorias,	150	132
Kickapoos,	1,262	470
Ottowas,	53	200
Piankeshaws and Weas,	250	222
Quapaws,	150	450
Shawnese,	2,500	1,250
Senecas and Shawanees,	156	211
Totals,	51,942	49,811

These Indians, having 640 acres or more to every warrior, squaw and papoose, besides annuities, equal to the interest on millions of dollars, can hardly be called poor; if so, they enjoy a poverty, which, if proportioned for all the people of our Union, would give us half the habitable world for our share. If the United States pursues a course as liberal, with respect to all the Aborigines within our limits, there will yet remain TWO MILLIONS of square miles for us —Enough to make up fifty states, and to sustain "FIVE HUNDRED MILLIONS OF SOULS!"

[From the Southern Literary Journal.]

THE FOUNTAIN OF YOUTH.

THE belief which prevailed among the early adventurers of the Portuguese and Spanish nations, that there existed, somewhere among the recesses of the New World, a fountain, the waters of which, when drank from, had the virtue of giving perpetual youth to those who did so, has been made the subject of frequent story. The tradition itself is lovely in the extreme, and will, doubtless, be one day made available by some high genius, who shall link its golden promises to the richest strains of harmony and romance.

'Twas a fond dream among the Portuguese
Those rovers of old ocean, that, afar,
Embosom'd in the calm of Indian seas,
And hallow'd by some sweet and singular star,
There murmur'd ever forth a cooling wave,
Whose waters, troubled not by human strife,
By the kind Destinies ordain'd to save,
Bequeath'd, to all who drank, perpetual life.

Nor life alone—that narrow boon of breath,
The nobler spirit learns so soon to scorn
That profitless flow of years which end in death,
Ere yet the joy they labour for is born:—
But, at that gracious fount, the broken heart,
Each wreck'd affection, sternly tried, but true,
And loves that ran not smooth, and forced apart,
One draught makes whole, one draught unites anew

The heart grows young, the spirit quails no more,
By that false star which blinded, still misled—
Lo! the good vessel finds the friendly shore,
While lights, more bright and certain, shine o'erhead;—
The pilgrim seeks, and gladdens at, that spring,
Which the bland seasons, from their fruitful store,
Crown with each blooming and each blessed thing,
Hope ever dream'd, or rapture knew, before.

A bird of beauty sings among the trees,
A silver strain, inviting, ever sweet—
The waters ripple in the murmuring breeze,
That, to the minstrel, is an echo meet.
Their ditty is a soothing to the ear,
The tale they murmur hath a power to calm
The chiding pulse of love, the heart of fear—
And those sweet waters, they are full of balm.

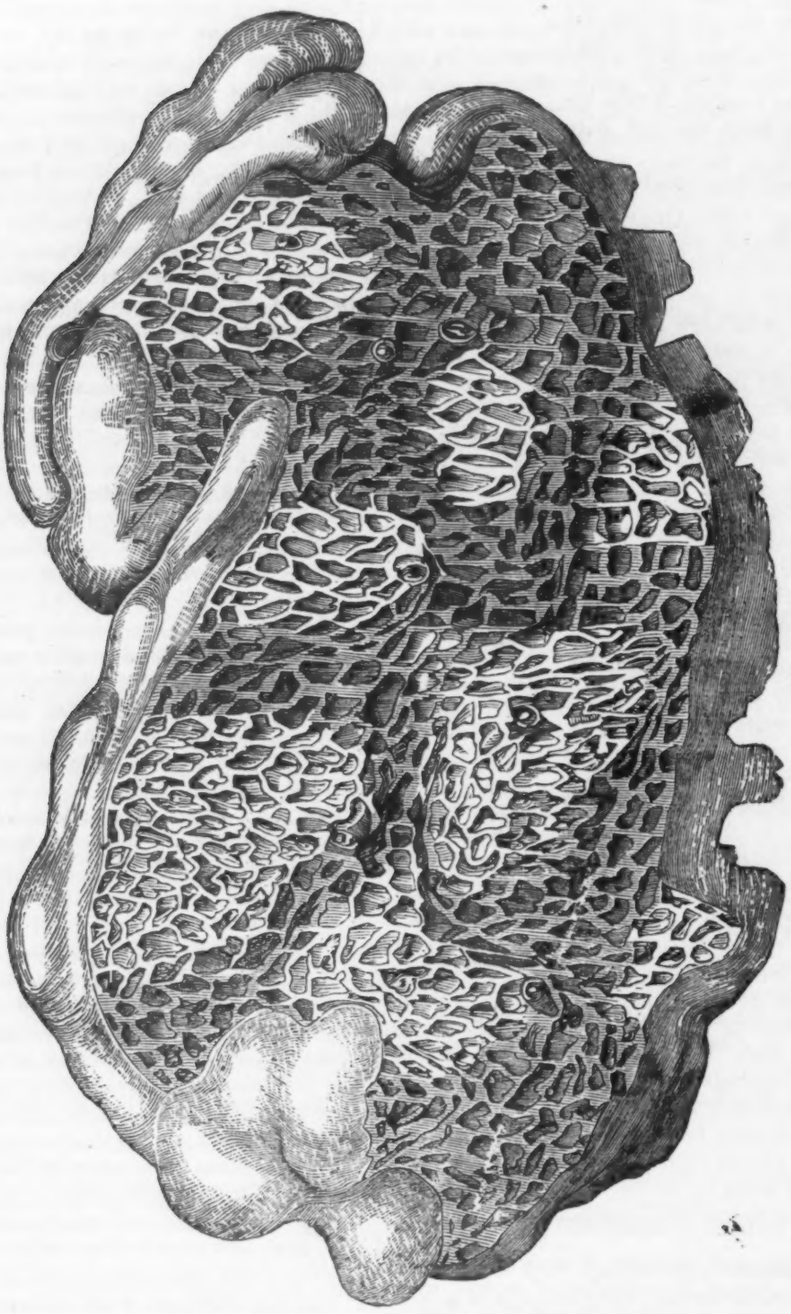
Was thy fond plan of boyhood wild—untaught
By sage experience, and reflection cool?—
Did thy warm passions banish the true thought,
Till, grown to phrensy, folly seized the rule;
And, blight was in thy bosom and thy brain,
And death seemed sweet, and life grew dark like night?
Thou art not hopeless!—thou shalt joy again,
Blessed by these waters with eternal light!

Wast thou a dreamer? Hadst thou in thy heart
Some pregnant fancy, which became, at length,
Of thy own spirit and wild sense, a part,
Born at thy birth and strengthening with thy strength;
And did stern Time, and still relentless Truth,
Rob thee of thy delusion, when late years
Had taught thee, what a credulous thing is youth?—
Drink of these waters and forget thy tears.

Had thy stern Fortune interposed to blast
The growing buds of Nature, and to burst
The sacred mould in which twin hearts are cast,
Each wedded to the other from the first—
Or was she false, who pledged herself to be,
Even to the last, through every change, to prove
The witness of a deathless faith to thee?—
Drink, and forget the false, in firmer, love!

Oh, give me of those waters! Let me haste
To dwell upon their verdant banks, and find,
Upon my fever'd lips, a fresher taste,
And a new feeling for my baffled mind.
Oh, let me all forget!—the dreary hours,
The faithless love, the fond, unfruitful dreams—
Reposing on its banks of living flowers,
And quaffing freely of its sacred streams.

Wm. Gilmore Simms.



[A section of a piece of wood affected with the dry rot.]

DRY ROT.

THE recent introduction into several of our large cities, of blocks of wood as a substitute for paving-stones, and the success with which the experiment of wooden pavement has been attended, renders the causes by which wood is liable to be destroyed, of peculiar importance at this time. In our well-wooded country, the abundance of this primitive material, has hitherto prevented much attention to the subject; but Americans are now becoming alive to the importance of planting new forests, and to the preservation of the wood already in existence.

The cut at the head of this article represents a piece of wood affected with the dry rot, one of the most powerful and insidious of those enemies to earthly perpetuity, and one that has hitherto walked in darkness. This vegetable plague is doing far more mischief than is usually supposed. It is commonly regarded by the unobservant multitude as a rare curiosity, worthy of a place in that domestick museum the parlour mantlepiece. It is, nevertheless, as common as touchwood; and the very mantlepiece on which it reposes, is often at heart a victim to its ravages. It preys incessantly upon the solid framework of our houses.

Professor Burnett, in his admirable "Outlines of Botany," says: "I knew a house into which the dry rot gained admittance, and which, during the time we rented it, (only four years,) had the parlours twice wainscoted, and a new flight of stairs; the dry rot having rendered it unsafe to go from the ground floor to the bedrooms. Every care was taken to remove the decayed timbers when the new work was done; yet the dry rot so rapidly gained

strength, that the house was ultimately pulled down. Some of my books which suffered least, and which I still retain, bear mournful impressions of its ruthless hand; others were so much affected, that the leaves resembled tinder; and when the volumes were opened, fell out in dust or fragments."

In the Quarterly Reviews for 1812 and 1813, are some lamentable instances of its ravages among British shipping. The Queen Charlotte, a firstrate, which occupied seven years in building, was launched at Deptford in 1810, and sent round to Plymouth, under jury-masts in 1811; and in 1812, was found to be too rotten to be seaworthy, and was then undergoing a repair which at the lowest computation, would cost twenty thousand pounds! Another ship, the Rodney, which was launched in 1809, had scarcely put to sea, when all her fastenings became loose, and she was obliged to be brought home from the Mediterranean, in 1812, to be paid off. The Dublin, also, which was launched in February, 1812, and put into commission the following August, was sent on a cruise towards Madeira, in December of the same year, from which she returned to Plymouth, in 1813, in so dreadful a state, that she was ordered to be paid off. But these examples, terrible as they are in a financial point of view, sink into insignificance when we contemplate the frightful waste of life which is daily occasioned by this "undying worm" at sea. Many a gay vessel, as she "walks the ocean like a thing of life," is in reality a sepulchre to her brave inhabitants. She may be fair without, but she is rottenness within: the dry rot is in her timbers; and with the first breeze, she springs a leak, and sinking, leaves no trace behind. "Doubtless," says Ralph Dodd, an early writer on this subject, "in many such cases, the external pressure of the water has forced itself in, and sent both ships and crews to the bottom. Nothing can exceed the helpless certainty of that death which awaits all those who sail with this foul passenger on board. Unlike the treacherous shoal, or the sunken rock, which bears a lighthouse on its shoulders, this great ship-eater can neither be 'buoyed or beaconed;' it lurks, a hidden poison; till in some quiet hour, far, far from helping hand or pitying eye, in the midst of a sunny ocean, it starts a tindery beam—and then—farewell, ship."

These preliminary observations will enable our readers to appreciate the following account of a most invaluable discovery made by Mr. Howard Kyan, of England, for the prevention of dry rot—a discovery for which he merits the lasting gratitude of the humane, as certainly as he deserves the highest favours which the commercial and scientifick world may have to bestow. Before, however, we proceed, it will be necessary to describe the structure of wood; the vegetable elements and products; and then to explain the nature and appearance of the disease, with the means by which it is proposed to stay its further progress.

1. *Structure of Wood.* A log of wood is proverbially solid, but in reality it is no more so than a honeycomb: a bundle of reeds, would, on an enlarged scale, very aptly represent its structure. The stems of trees are closely compacted assemblages of tubular vessels, in which a variety of fluids circulate. They have been divided by botanists into two great natural classes, according to the mode in which they increase, and of which the oak, and any palm, may be taken as the representatives If a transverse slice of the former be examined, the following four things will be readily observed: 1, a central cellular substance or *pith*; 2, an external cellular and fibrous ring, or *bark*; 3, an intermediate *woody* mass; and 4, certain fine lines radiating from the pith to the bark, through the wood, and called *medullary rays*. This is called *exogenous* structure, a term which signifies an *outside grower*, or a plant whose stem increases, by additions to its *outside*. In the palm, contrary to these arrangements, it will be found in a section of the stem, that neither bark, nor pith, nor wood, nor medullary rays, are observable; the whole surface appears to be composed of hard cellular dots, caused by the section of bundles of woody tissue, and the mass of cellular substance, in which they lie imbedded. This mode of composition is called the *endogenous*, and denotes the *inside growers*, or those plants whose stems grow by the generation of new woody matter in the centre of the stem, which, as it is produced, gradually pushes the older layers outward.

The pith, in an exogenous stem, is a collection of hexagonal cells, filled with a peculiar fluid, and is supposed to be a provision of the Creator for the support of young and weak buds. The bark immediately covers the wood, and forms an external coating to the stem. It consists of annual layers of cellular substance, and woody fibre: the former called the *epidermis*, and the latter, the liber, or inner bark. Every new layer is formed on the inside next the wood. The old ones are pushed outward, and perish in a variety of ways peculiar to the trees which bear them. The wood lies between the bark and the pith, and chiefly consists of ducts and woody fibre. Between the bark and the wood, is formed, in the spring, a mucous viscid layer, composed of delicate cells and granular atoms. This secretion, which is called the *cambuim*, is exuded by the bark and the wood, and is the foundation of a new ring of wood; it is at first quite white, but in the course of years becomes of a deeper teint, and assumes in various species a number of rich and variegated colours. In the mahogany, it is of a fine reddish brown; in Brazil wood, green; and in ebony, black. The new layers constitute what is called *sap-wood*, and the older ones, *heart-wood*, or *duramen*.

The first layer of wood differs from those which follow, inasmuch as it is composed of a great quantity of tubes, named from their structure spiral vessels, which enwrap the pith, and form what is called the medullary sheath. This continues through the life of the tree, to communicate by means of its tubes with the leaves, flowers, and fruits. The medullary rays are built up of an infinite number of oblong cells pressed into flat plates, which connect the pith with the bark.

These marvellously complicated structures form a grand machine, whose perpetual office it is, first to transmit the sap to the leaves, and afterward to convey some of the peculiar products of the tree to their destined resting-places. These joint processes are thus performed: a variety of aqueous solutions are absorbed by the roots, and converted by certain chymical changes into sap, a fluid which is chiefly compounded of water, mucilage, and sugar. This is then carried upward by the medullary sheath,

and the sap-wood, into the leaves, where it is exposed to the action of air and light, and made to undergo a variety of decompositions, and to combine with new substances, by which the elements of a number of peculiar vegetable products are called into existence. The sap then becomes what is called "*proper juice*," and is transmitted to the liber, or inner bark, and from it, by the medullary rays, to the heart-wood. In both of these places it deposites various substances proper to the tree, by a process which is not yet well understood, but which appears to be closely analogous to the glandular secretion of animals.

2. *Vegetable Elements and Products.*—The primary constituents, or materials of which a plant is built, are carbon, hydrogen, oxygen, and nitrogen; carbon being the prevailing principle. These elements are derived chiefly from water, air, vegetable extracts, salts, and earths.

Vegetable products are compounded of the above substances; they are very numerous, and greatly diversified in their qualities. We can do no more than name them: gum, sugar, starch, gluten, albumen, fibrin, extract, tannin, colouring matter, bitter principle, narcotick principle, acids, oils, wax, resins, gum-resins, balsams, camphire, caoutchouck, cork, woody fibre, sap, proper juices, charcoal, ashes, alkalis, earths, and metallick oxydes.

3. *Symptoms of Dry Rot.*—Wood affected with dry rot, becomes at first softer in its texture, swells, and changes to a darker colour; next, its volatile principles escape in the form of gaseous effluvia which have a mouldy smell, and after these changes have terminated, it dries and cracks in various directions. Lastly, when the tenacity of the woody fibres has been totally destroyed, the whole mass resolves itself into powdery matter, which in time becomes a nidus for the sporules of cryptogamick plants, which, as they germinate and increase, complete the work of destruction, and leave nothing behind but a heap of vegetable earth.* The presence, therefore, of these minute vegetable parasites is to be taken only as an evidence of dry rot, and not for the disease itself; it is of importance to bear this distinction in mind, as most authors, following the popular opinion, have taken the *effect* of dry rot for its *cause*, and have thus led the publick very far astray concerning the remedies for its treatment.

We have given an engraving of one of the fungi which *follow* the dry rot. It represents the *Merulius lachrymans*, or *weeping* fungus of decayed wood, so called from certain drops of water which exude from the cavities of the hymenium, and which have been fancifully supposed to be so many tears shed for the destruction which the dry rot had occasioned.

4. *Kyan's Patent Process for the Prevention of Dry Rot in Timber.*—In our enumeration of vegetable products, *albumen* is mentioned. This substance, which is probably more or less present in all vegetable structures, has been discovered to be the primary cause of dry rot; and as a proper knowledge of Mr. Kyan's invaluable discovery rests upon a clear apprehension of its chymical constitution, we shall describe its history at length.

Albumen is so called from the Latin, *albumen*, the white of an egg, and denotes one of the primary constituents of organick structure. It is found in animals as well as plants, but is of the same nature in both. It exists in the green feculæ of plants; in the fresh shoots of trees, in the sap of many plants, and generally in emulsive seeds.

Albumen is coagulable by the stronger acids, and by the metallick salts. Of the latter, the bichloride of mercury, or corrosive sublimate, is so delicate a test of its presence, that if a single drop of a saturated solution of corrosive sublimate be let fall into water containing only the two thousandth part of albumen, it will occasion a milkiness in the water, and produce a curdy precipitate.

We have now to explain the nature of Mr. Kyan's "process," the circumstances which led to its discovery, and the tests by which its truth has been demonstrated.

The strong affinity which exists between corrosive sublimate and albumen, having caused the latter to be used as a most effectual antidote in cases of poisoning by the former, it occurred to him that a similar operation in the case of wood might, by putting its albumen beyond the ordinary powers of decomposition, at once, and for ever, protect it from the dry rot. This happy thought he immediately put to the test of the following experiment: two sets of vessels, containing acetous and saccharine solutions, were prepared, and treated with an admixture of corrosive sublimate. These fluids, apart from the mercurial preparation, and left to themselves, would, in a few weeks, have become corrupt and fetid; but with it, Mr. Kyan left them for three years openly exposed to the atmosphere, without the slightest chymical change following:—"the acetous solution had not become putrid, nor had the saccharine decoction yielded to the vinous or acetous stages of fermentation."

Extending his views, he was next led to the conclusion that timber, being composed of a variety of cells and tubes, through which certain fluids were in a constant state of transmission, it would be no difficult matter to inject the entire structure with the mercurial preparation. He accordingly built a wooden tank, which he filled with a solution of corrosive sublimate, or, as it is technically called, *bichloride* of mercury, and proceeded to immerse a number of specimen logs of wood for trial. The affinity of the albumen for the mercurial salt, aided by the *porous* structure of the wood, caused a complete saturation to take place in about a fortnight, where the albumen was every where converted into protochloride of mercury.

Nothing now remained to complete this interesting discovery, but the actual trial of the prepared woods. The "*fungus* pit" at Woolwich dock-yard offered the severest test to which it could be subjected, for it is said that in that "most villanous cavity, no substance, either vegetable or animal, can, by possibility, escape destruction." Mr. Kyan was, therefore, most wise in getting permission to bury his indestructible woods within the shadows of its

——"Low brow'd misty vaults,
Furr'd round with mouldy damps and ropy slime,"—

* The atmosphere would appear to be loaded with the invisible seeds of these minute plants; for wherever any vegetable substance falls into decay, no matter how closely it may be shut from the air, it is immediately covered with a luxuriant crop. We once saw the decayed core of an apple filled with a flourishing growth of the mucor tribe, the apple at the same time being quite sound on the outside.

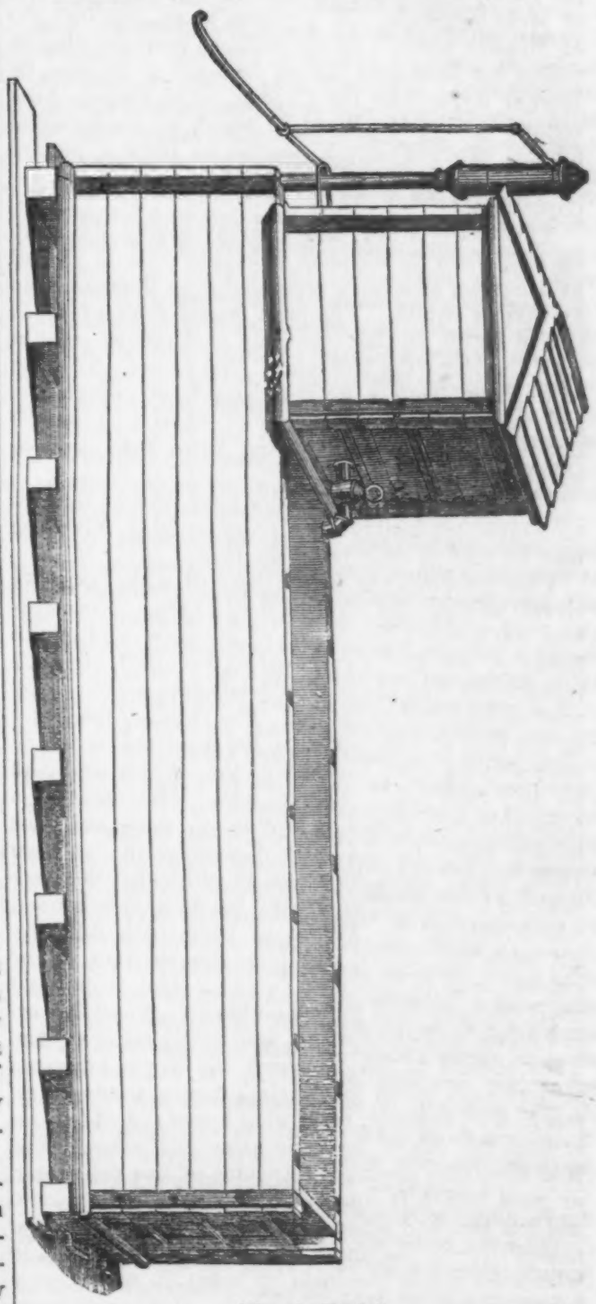
for the results which followed have made his discovery as "imperishable" as the wood which stood untouched a five years' siege,

"Where all things else decay."

Dr. Birkbeck, in his lecture, exhibited a piece of oak, which, he said, "had been five years in that severe place of test, surrounded by decaying matter —by the decaying properties of the pit—by the heat generated by that decay—and by the quantity of carbonick acid which always exists in the pit, and escapes in great quantities when the doors are opened. After remaining three years in this pit, it was exposed to the air for six months, and in order to test it still more completely, it was again introduced into the pit, where it remained for two years longer. *This is a probation which must be considered decisive.*" "There was not," continued the doctor, "the slightest disintegration or mouldering of any of its fibres—it exhibited no appearance of generating any animal or vegetable matter—it retained all the hardness, elasticity, and difficulty of bending, that belongs to the oak—and, therefore, it may truly be said to have remained perfect in spite of all the circumstances to which it had been exposed. The truth of what had happened to this piece of wood, is established by a memorandum which was signed by those who were spectators of the removal. It states: "That on the nineteenth of July, 1833, the wood was removed from his majesty's fungus pit at Woolwich, in the presence of the subscribing gentlemen—that the block of timber that was taken out formed part of a larger block—that it was sawn through, and split into three pieces in their presence, and that it was found to be in a sound and healthy state, perfectly free from insects, and every appearance or symptom of dry rot, or decay."

These experiments have since been repeated in a vast number of different and very trying ways, but uniformly with the most complete success; and it is now established beyond controversy, that not only may ships, houses, furniture, &c., be preserved, but also, that as canvass, calico, ropes, and cordage of all kinds, are made of flax and hemp, they may, by the same process, be put completely beyond the influence of dry rot.

The mode in which the application of the solution takes place in the publick tanks stationed in various parts of the town, is as follows: tanks, similar to that in the following engraving, are constructed of different dimensions, from twenty to eighty feet in length, six to ten in breadth, and three to eight in depth. The timber to be prepared is placed in the tank, and secured by a cross-beam to prevent its rising to the surface. The wood being thus secured, the solution is then admitted from the cistern above, and for a time all remains perfectly still. In the course of ten or twelve hours the water is thrown in great agitation by the effervescence occasioned by the expulsion of the air fixed in the wood, by the force of which the fluid is drawn in by chymical affinity, and by the escape of that portion of the chlorine or muriatick acid gas which is disengaged during the process. In the course of twelve hours this commotion ceases, and in the space of seven to fourteen days (varying according to the diameter of the wood,) the change is complete, so that as the corrosive sublimate is not an expensive article, the albumen may be converted into an undecomposable substance at a very moderate rate.



[Kyan's Tank.]

Mineral Wealth of Missouri.—However extravagant some of the representations may appear, there is, undoubtedly, a great amount of mineral wealth in Missouri. It was stated at the late convention in St. Louis, that within a circumference of sixteen miles, there are seventy-three mines of lead and iron, which had produced in one year more than seventy millions pounds of ore!

Other minerals are found in rich abundance, and as the population of the country increases they will be brought into market. There is a wide field for future enterprise in the vast region between the Mississippi and the Rocky mountains.

SKETCH OF TEXAS.

THE province of Texas lies between the twenty-seventh and thirty-sixth degree of north latitude, and the ninety-fourth and one hundred and third parallels of west longitude. It contains about 150,000,000 of English acres. In the northern part the climate differs but little from that of the south of Europe, of Buenos Ayres, and the Cape of Good Hope. Few countries, says Mr. Ward, to whom we are indebted for the annexed sketch, possess so large a portion of rich land, or are so capable of supporting a dense population.

The coast is low, and swampy during the rainy season, when it becomes unhealthy. It is skirted by a number of islands separated from the main land by narrow straits. The most considerable of these is San Louis, or Galveston, the easternmost point of which shelters the harbour of that name. The bay of Espiritu Santo is the next harbour of importance, and this, from the frequency of shoals, cannot be frequented by vessels drawing more than eight or ten feet of water.

The anchorage is generally good, and as the water shoals gradually, vessels approaching this coast may be guided entirely by the lead.

Few countries are better supplied with navigable rivers, streams and rivulets, than Texas. Nevertheless, excepting along a part of the coast, and on the banks of the Red river, near Great Raft, no such inundations take place as to render the adjacent district periodically unhealthy. The depth of the water on the bars at the mouth of the principal rivers is not yet accurately ascertained, but it is believed to be only from ten to twelve feet. The fact that a large schooner, mounting twenty-two guns, ran about twenty miles up the river Colorado, in the year 1820, would seem, however, to prove that this supposition is founded in errour: but another schooner, which entered the *Brazos* in 1835, with difficulty got over the shoals, and from the strength of the current, was in imminent danger. The rivers, at a short distance from their mouths, are generally narrow, deep, and clear with a moderately rapid stream. They abound in fish, to which the North American settlers have given the English names, trouts, carp, tench, &c., although what what I saw differed widely from the fish of the same name in Europe. The Red river also produces a species of fish called gar, or gare, which is equally voracious with the shark, and has attacked persons bathing. The abovementioned river is the most considerable in Texas, to which, for some hundreds of miles, it serves as a boundary with the United States. It takes its name from the colour of its water, which flows through a soil of rich red loam and enters the Mississippi, about four hundred miles from its mouth. Steamboats run from New Orleans to Natchitoches, three hundred miles above the junction of the two rivers, once or twice weekly, except during the autumn, when a chain of rocks prevents their passage higher than Alexandria, one hundred miles lower down.

The river Brazos and Colorado de Texas are the next in importance to the Red river. Both are navigable to a very considerable distance from the coast; but near their mouths are subject to occasional inundations. The Guadaloupe is scarcely inferiour to those already named. The Nueces, Trinidad, and San Antonio, are likewise fine streams, and in size, about equal to the Sabina, which forms the boundary. The Navasoto, Angulino, and Neckas, San Jacinto, and Arroyo de Cedros, are navigable to a great extent, except at certain periods; and the Arroyo de la Vaca, (or Lovelace river,) which runs but a short distance into the interiour, has, it is stated, nine feet of water upon its bar. The rivulets and minor streams are innumerable. As in Devonshire, almost every valley has its stream or brook; and judging from the small fish which I observed in them, I should conceive the greater number to be perennial.

The low lands, which extend along the coast are admirably adapted to the cultivation of rice. In some parts sugar, and in others cotton, may be produced similar to that of the Sea islands. The central part of Texas is prairie, nearly level, and abounding with a most luxuriant vegetation; the banks of the rivers being lined with timber, or skirted by grounds, gently undulating and covered with trees. Here the depth of rich alluvial soil is very considerable, and cotton, wheat, barley, rye, Indian corn, indeed every production, both of more temperate climates and of Europe, is produced in equal abundance and perfection. The prairies in their natural state afford a constant supply of excellent pasture. The banks of the San Marcos were selected by the Spaniards as excelling in fertility, for the establishment of a colony projected in 1804; and those of the Colorado and Nueces are also spoken of in very high terms by all who have visited them. In the northwesternmost part of the mountain district of San Saba, the ground in general is rocky and steril. Towards the east there are also extensive hills, covered with fig-trees. This land is poor, but would evidently produce wine, since the vine grows there spontaneously, and in great abundance. There are three sorts, two of which are small and sour, but the grape of the other although the skin is thick, is large and sweet. The valley of the Red river is stated, by the numerous North American settlers, to contain some millions of acres, exceeding in fertility, even the celebrated Mississippi bottom, the valley of the Roanoke, or, indeed, any lands to be found in the United States. They have styled it the "Garden of the West," and the cotton which it already produces far excels the Alabama, Tennessee, or, indeed, any excepting that of the Sea islands. I here ought to remark that growing cotton possesses one great advantage. Children so young as to be unable to engage in any other occupation, can be employed in picking cotton, and at the age of nine or ten, probably do fully as much as grown-up persons. Every species of grain thrives admirably in this fertile tract, and it is thought that the ribbed sugar-cane, lately introduced from the Philippines, and which arrives at maturity a month sooner than the common sorts, would answer well there. In the valleys is found the red, or pencil cedar of the largest growth, also a great quantity of the Bois 'are, of which the Indians make their bows. It is of a beautiful yellow colour, susceptible of the highest polish, not heavy, but exceedingly tough and elastick. In addition to these trees, all the varieties which flourish in the United States are to be met with, as red-dwarf, or scrub, and post-oaks; (of the former of which staves are made; while the latter is so strong, hard, and tough, that it is fre-

quently employed in lieu of iron to make the screws of the cotton presses;) together with ironwood, hickory, and many other woods admirably adapted for the lathe. The sugar-maple is also very valuable; an auger-hole being bored in its trunk in the spring of the year, a small spout is inserted and the liquor which is subsequently evaporated to a consistency, is caught in a vessel. A single tree has been known to yield one hundred and fifty pounds of sugar; the average daily produce being from three to four or six pounds. I found its flavour very pleasant, but do not think it is near so sweet as the common sugar.

Those who have settled in Texas a few months, really enjoy more comforts (and these in addition to the opportunity of possessing a handsome property) than any other peasantry with which I am acquainted. One act of liberality and hospitality which is constantly practised by all his neighbours towards a new comer, whose character is found unexceptionable, would do honour to the most highly-civilized people. They all assemble at the spot which he has fixed upon for his residence, with their axes and draught-oxen, fell the timber, and build for him his log-hut. This generally consists of three apartments, one for sleeping, another for eating, both closed in all round, while in the centre, which is left open on both sides, he keeps his saddles and tools, and takes his meals during the hot weather. The kitchen (also a log-hut) is usually separated from the house, as is also the smoke-house, where his meat is smoked and kept. The log-hut is by no means an inconvenient residence; indeed, some of them are roomy, neat, and durable, very strong, and well calculated to afford protection from every inclemency of the weather.

The wild animals to be met with in Texas, are the buffalo, or bison, known in this country as the bonassus, which enters Texas, from the north, in vast herds during the winter; the panther, leopard, bear, otter, beaver, antelope, deer, rackoon, black-fox, &c. Turkeys abound; there are two species of partridge; swans often arrive in great numbers, together with immense flocks of wild ducks and geese. The flesh of the buffalo, especially its hump, is excellent, and generally prized far above beef; the bear's ham is also considered a great delicacy. But by far the most interesting animal is the wild horse. From Barbary, the Arab transplanted into Spain, passed from thence to the New World, and being turned loose by the first European settlers, it has peopled the rich plains of Texas with droves innumerable. The mestingo, or wild horse, is not often large or heavy, but shows blood; it is well made, hardy, active, and if caught young, very docile, although when ever an opportunity offers, apt to rejoin its wild brethren. The piebald, light brown, chestnut and dun colours prevail. Their defect is the tenderness of the hoof, which is too frequently to be met with among them, as bred on soft ground; whereas throughout Mexico those which are reared on a hard rocky soil, have a solidity of hoof which renders shoes unnecessary, even to the fore feet; the hind feet are seldom shod. The mode of catching them is similar to that by which wild elephants are caught in India. A space sufficiently large to contain a drove is enclosed with stakes, trunks, and branches of trees: the entrance is narrow, but gradually winds outward, and a herd is driven or decoyed into it by a horse taught for the purpose. I have seen instances of attachment on the part of a young colt thus caught to a careful master, far stronger than any I ever before witnessed in a horse.

Of the many tribes of Indians who either occupy fixed habitations, or wander over certain districts of this vast country, the Camanches are by far the most numerous. Their occupation is the chase of the buffalo, which they follow to the north during the summer, over the vast plains which lie between the head waters of the Red river, the Arkansas, the Bravo del Norte, and the Missouri. In the winter, when the snow compels the innumerable herds of these animals to seek a milder climate, the Indians deposite the skins which they have obtained among the mountains of San Saba, and pursue the buffaloes to the frontiers of Cohahuila. At this period they have not unfrequently stolen across the river Bravo del Norte, killed the herdsman, and carried off the cattle from different parts of the adjacent districts. They have also occasionally ventured to attack the Haciendas and hamlets, carrying off the inhabitants, some of whom have been sold, as is currently reported throughout Cohahuila, as slaves, on the borders of the United States.

If a wandering tribe can be said to have a residence, that of the Camanches is the mountainous district of San Saba, which they cross both in the spring and autumn, and where they deposite their families occasionally during their logn expeditions. These Indians generally kill the buffalo with their bows and arrows, their horses being trained to carry them close to it, and on its right side. Sometimes they pursue, and with a sharp iron (crescent shaped) passing its left flank, sever the hamstring of the right leg, when the animal falls away from the horse; they sometimes also shoot it with the rifle. The scent of the buffalo is, however, so acute that it can only be approached from the leeward side: it is timid until wounded, but then its impetuosity is irresistible, and its attacks are repeated until it falls. Being both active and, from its vast bulk, very powerful, the charge of an old bull is described as tremendous. The long shaggy hair which covers its head and breast, gives it a terrifick appearance, as it rushes headlong at whatever it perceives, (often the smoke of the rifle,) blowing and snorting with astonishing loudness. Should it discover and throw down its antagonist, it gores and tramples upon him until (if desperately wounded) it falls dead by his side. The horns of the buffalo are short, but very sharp pointed, although thick at the base. Being very hard and black, they are highly prized for cups and other purposes. Its flesh, when fat, is excellent, especially the hump; the skins, covered with an excessively thick hair, nearly approaching to wool, are much used in the northern parts of the United States, more especially as a wrapper when travelling in the sledges or sleighs, over the ice or snow. The Indians give a softness and pliability to these skins greater than that of the buck, or even doe skin of Europe. The following is, I believe, the process adopted: after tanning with sumach bark, the skin is stretched over a hole in the earth, and smoked; the brains of the animal and alum are also rubbed into it. It is subsequently painted in squares, diamonds,

and similar figures, the colours being very durable.

Until the year 1823, excepting the wild Indian tribes there were no inhabitants except at the town of San Antonio de Bexar, and its immediate neighbourhood; at the fort of the Bahia del Espirito Santo, and in the environs of Nacogdoche. The whole number hardly amounted to three thousand souls. Many small grants have been made to individuals of lands near the rivers Sabina, Nechas, and Angulino, but nearly all of them remained untenanted. The first persons who ever took efficacious measures to carry into effect extensive schemes of colonization in Texas, on their own private account, were Mr. Austin, an inhabitant of Louisiana, and Colonel Milam. The former, after traversing this vast country near the coast, fixed on the spot between the Brazos and Colorado, where he obtained a very extensive grant from the Spanish government. Embarrassments, owing to the failure of the proportion of the banks of the Western states, together with the revolution, prevented his reaping the fruits of his exertions. His eldest son, Stephen Fuller Austin, succeeded to the claims, and to the indefatigable and enterprising spirit of his father, who died about the year 1820 or 1821. In 1823, he obtained from the first Independent Congress the recognition of his grant, and though inundations, which there was no reason to anticipate, have twice done serious injury to the infant colony, he has the merit of having succeeded in peopling a wilderness, and providing a number of industrious families with an ample subsistence, as well as with the means of acquiring not only comforts, but wealth. The settlers on his lands are all North Americans; nevertheless, it is but justice to state, that in the late business, when a few of their countrymen proclaimed Texas, independent of Mexico, (the Fredonia scheme,) his and their conduct proved their fidelity to the government of their adopted country. Austin, at the head of all who were capable of bearing arms, having offered to take them up in defence of the legitimate government. This colony is in the neighbourhood of some small tribes of Indians, whose pilferings it has been often necessary to chastise. Col. Benjamin Milam, endowed by nature with a strength of mind and spirit of enterprise almost peculiar to the inhabitants of the Western states of America, associated with the Indian tribes in order to explore the more Southern parts of this extensive country. He subsequently engaged in the war which gave independence to Mexico; and his courage, activity, zeal, and love of freedom, caused his rapid advancement. Finding that the lands on the southwest bank of the Red river were, in every respect, by far the most valuable in Texas, indeed, as he and all those who have examined declare, far superiour to those of any part of the United States which they have visited, he determined on settling there. Being, however, unable to obtain a grant in that quarter, he succeeded in his application for one on the river San Marcos, precisely at the spot where it was formerly intended by the Spanish government to establish a colony.

Nature has evidently given to Texas commercial advantages, which she has denied to almost every other part of Mexico; indeed, few if any, countries are more favourably situated for carrying on an extensive and lucrative foreign and domestick traffick. The principal export doubtless will be cotton, which grows in the greatest abundance, and is in quality inferiour only to that of the Sea islands. As the capital employed in raising it is very inconsiderable, the Texas colonist will be able to undersell every competitor in foreign markets. His healthy lands, cultivated by free and cheap labour, cost him comparatively nothing; whilst the North American and West Indian require an interest on a large sum employed in the purchase of property and slaves, subject to many contingencies. Pot and pearl ashes will be obtained in clearing the lands. Texas will supply the West Indian islands with timber, salted provisions, flour, and whatever else they now require from the United States, at least equal in quality, and at a lower price than they can be obtained from thence; mules and horses will also be exported to Cuba and the Antilles. The Southern parts of the United States are already supplied from thence, and from Cohahuila with both; but more especially the former, which are sometimes embarked at the Brazos de Santiago, close to the mouth of the river Bravo del Norte, but more generally conveyed by land. It is thought Texas may prove well situated for the growth of merino wool, both on account of the climate and the extent of uncultivated land, over which they may be allowed to graze at liberty. The North Americans have exported wool from Cohahuila, but I have been informed that, although the staple is long, it is by no means fine, and there is a burr in it which requires much trouble to extract. The latter disadvantage will not be met with in Texas, except possibly among the mountains of San Saba; for I have observed throughout Mexico, that wherever the land is arid, burrs and thorny plants of every description abound, although wherever water is abundant, they are scarcely to be found. Swamps, stagnant water, and a rank vegetation, together with the disorders arising from the marshmiasma, render a large proportion of the southern parts of the United States extremely prejudicial to health. A circumstance that I have nowhere else observed increases the inundations, which are the real causes of the evils, to a very great extent. The ground is so level, that not only do the more considerable rivers overflow, but by their influx into the smaller tributary streams, produce the same effects on both sides to a very considerable distance. This I remarked more particularly when ascending the Red river; a current from the Mississippi ran up it, not much less than one hundred miles. Nearly all the rivers of Texas, on the other hand, are "encaisses," and except near their mouths, seldom, if ever, produce inundations prejudicial either to property or health. Nevertheless, during the rainy season there is a sufficient rise in the rivers of Texas to render even the small branches navigable, and afford opportunities of conveying the produce of the interiour by water-carriage to the coast. Texas is bounded on the Western side by the arid mountains of San Saba and by elevated plains, which serve only to afford pasturage to the buffaloes and other wild animals (the Bolson de Mapimi.) On the South side lie Cohahuila, New Leon, Tamaulipas, and San Luis Potoss, which, although in parts exceedingly fertile, contain large tracts of land in which the sterility of the soil and the want of water

will always reduce the population to a very limited number. Consequently it may, in a great measure, be considered as an oasis, and must always have considerable influence upon the destiny of the circumjacent districts.

AMERICAN CAVERNS.

CAVERN AT TRENTON FALLS.

It has long been known, that there has existed in the vicinity of these falls, a cave of considerable extent, although it has never been fully explored. On the first of this month, in connexion with a number of young gentlemen from Oneida Institute, we examined it more extensively than had before been done. Its entrance is to be found at a distance of perhaps a mile and a half from the recess, directly upon the creek, on the west side, and about two hundred yards from its bank. It is in a field owned by Stephen Buffington, and has immediately around it a clump of bushes.

Before entering, we entirely changed our dress, putting on old clothes which we had provided for the occasion, and took in our hands candles, hammers, matches, &c.—(a preparation which was afterward found to be essential to safety.) We also left at the mouth some persons to build a fire, (a precaution which we would also recommend to others for their comfort on coming out.) It is not convenient for more than three or four persons to enter at a time. Each one should carry a candle or other light, as it greatly facilitates the progress, and a single one is every moment liable to be extinguished. We were able to enter by stooping slightly; but the passage immediately contracts, so that but one person can pass at a time, and that only upon his hands and knees. The way is arched in the rock above, and has in its bottom a fissure of considerable depth, in which flows a stream of pure water. It is nearly horizontal, in a direction towards the creek, and uniform in size, except here and there, when it is partially closed by pieces of rock which have fallen from above. At a distance of about ten yards from the mouth, this passage opens into the upper part of a circular room, about twelve feet in depth, which, from its figure has been called "the Bottle." It presents nothing very remarkable. Ascending from this, the passage is continued forward of the same form, and in the same direction as before, for a distance of thirty yards, when it is firmly closed by rocks. Here, however, the fissure in its floor is enlarged in several places. Through one of these openings we found a passage; and descending in the posture of a chimney-sweep, through a space of fifteen feet, we came to the channel of the brook. Following this we found a straight and narrow route, in form and course like the one above, for forty yards. Through this it is necessary to go on the hands and knees a part of the distance, and occasionally lie flat down and crawl like a serpent, carrying one arm before with the candle, and applying the other closely to the side of the body, and even with this expedient, a person of greater than ordinary size might stick fast in the passage, and be unable to extricate himself without assistance. At length, the way becomes wider and higher, and its sides begin to be covered with an incrustation of carbonate of lime, which being crystalline, presents, by the reflection of the light, a handsome appearance. Soon it expands more, and passes an apartment of considerable dimensions. Here all our toil was rewarded: our eyes were gratified with the sight of stalactites, hanging in numbers from the roof, and running in ridges like little columns along the sides. The whole surface of the rock, and the pebbles on the floor, are covered with an incrustation, white in some parts, and brown in others, presenting an appearance truly beautiful. The stillness which reigns in this deep part of the cavern, in connexion with the thought that we are separated from the living world above by such depth of solid rock, produces a peculiarly solemn impression on the mind, while the reverberation of our voices, returning upon our own ears in greatly magnified notes, causes a very singular sensation.

Passing still onward, the passage continues for many yards, of various dimensions, and as we crawled along, a pleasant sound as of falling water, fell upon our ears; and, indeed, we soon entered a cavern larger than either of those we had seen, from the side of which, issues a living spring, or a brook, which, like the one we followed, has found its way from the surface of the earth, and here falls from a ravine, in a perfect sheet, like a cascade in miniature. This cavern was more beautiful than the former. Its sparry roof and walls, and its white pebbles, with the water reflecting in its fall the light of our candles, and breaking the profound stillness which would otherwise prevail, produce an effect altogether pleasant and more easily imagined than described. The rill makes its way through the rock to the creek, but cannot be followed more than twenty feet from this cascade, the way being then closed by large stones. At this point bones were found, indicating it to have been the resort of beasts of prey. On starting to come out, our first impulse was to make extensive depredations on the encrusted walls and roof, but the recollection of the narrowness of the passage prevented, and we contented ourselves with taking one or two pieces of a foot or more in length, which we brought out singly; and filling a bag with smaller pieces, which we rolled along in the path before us, we arrived safe at the mouth of the cave, having been absent two and a half hours.

The whole distance we estimated at three hundred feet; the air was pure, and although cold and damp, our constant exercise kept up free circulation, and we sustained no injury, except the bruises received by our heads from the rocks. Thus, in addition to the well-known grandeur and beauty of the works of the Author of nature seen in this vicinity, we have viewed another curiosity fully equal to the former, giving to the spot new interest and greater variety. True, it is difficult of access, but those who enter it, will be richly paid for their labour: the lovers of adventure, by the novelty of so romantick a journey into the bowels of the earth; the mineralogist, by the rare and curious specimens which he will add to his cabinet. D. B.

Whitesborough, July 5, 1836.

To enrich my mind and purify my heart; to keep my tongue still and my arm active; to eat slowly and sleep quickly: this is all my philosophy.

LADIES'. DEPARTMENT.

AMUSEMENTS AT HOME.

Inlaying; or the Imitation of Inlaid Ebony and Ivory.

THE materials used for this work are but few:—a bottle of liquid black, some fine camel-hair pencils, some black tracing paper, and also a sheet or two of transparent; a hard blacklead pencil, a dull-pointed stiletto, and several patterns for the painting; a bottle of liquid white, some isingglass, and a large flat tin camel-hair pencil, for the preparing. We shall first mention how to paint on the white wood alone, and then explain the methods of preparing boxes, screens, &c. whether made of dark or light wood. Take a small square box to begin with. First, the wood must be prepared with thin isingglass, to prevent the spreading of the colour when applied; about a tablespoonful of small shreds of isingglass must be boiled for twenty minutes in half a pint of water, when it may be poured through a piece of muslin into a basin, and while warm spread over the box, with the large tin brush; in half an hour it will be sufficiently dry to draw on. Then selecting a pattern of a proper size, place it upon the box, in the same manner as for the Japan work, with the black tracing paper under it, and trace the outline with the stiletto or tracer; if the pattern is upon the transparent paper, it will be necessary to introduce some smooth tissue paper between it and the black tracing to enable you to see the outline plainly. When this is done correctly, the back ground, which is the part of the subject to represent the black wood, may be filled in with the paint. Take a little out with a brush, and put it into a saucer, adding some water to make it work pleasantly. In guiding the brush to the outline be careful to obtain a clear form by moving it steadily; and the paint must be sufficiently thick to cover the wood thoroughly at once. The next thing is to shade the light parts by drawing the fine black lines with a small camel-hair pencil: these must be done with great attention to regularity, in reference to their thickness and distance from each other; and when the shading is so dark as to require a second row of lines, they must not be done until the first are perfectly dry, lest they run together and cause a blot; and in putting them on, let them cross in a slanting direction so as not to form right angles with the first.

In choosing drawings for this art, reject those designs which have nearly an equal quantity of black and white in masses presented to the eye; there should be a decided preponderance of either black or white over the whole performance, but the latter produces the best effect. If the top of a box or any other surface be ornamented with small vine leaves, spreading over the whole and tendrils running between, and small black spaces to fill up, it has a very pleasing effect: or if a pattern be drawn in the middle of the box about large enough to cover one half the space, and a neat border be carried all round towards the outside, and the background of the border only be filled with black, and not the background of the drawing in the centre, the effect will be equally good: again, if a drawing to occupy one third of the whole space to be ornamented be placed in the middle of the box and a large light border all round, and only the middle be filled up with black, the effect will be quite as good; and for dark subjects, if a small circle in the middle have a drawing with a light background, and a broad black border all round with merely a small running pattern on it, a pleasing effect will be given. These hints will assist in choosing for the distant or general effect only. It will be necessary to pay equal attention to the filling up or detail, because the performance should please not only at a distance but also when brought near the eye. All those subjects which contain deformed figures, ill-proportioned flowers palpably erroneous perspective, and in fact what

ever looks absurd must be rejected, not being at all necessary to the work nor found in good specimens of the foreign inlaying.

We will now state the mode of preparing some screens with the white composition. The isingglass size is used for this purpose, and this is quite a stiff gelly when cold; place it over a jug of hot water to melt it, then put about two tablespoonfuls into a teacup, which must also be placed over warm watet. Put to it half a bottle of prepared white, and stir them together with the large flat tin camel-hair brush used for the isingglass in the other process as it is rather stiff, dip it first into the hot water for a minute or two to soften it. Now add a tablespoonful of gin to make it work smoothly.

This liquid is to be mixed up with the white, and then to be spread over the screen evenly and thinly, first on one side and then immediately on the other, holding the screen by the edge with the thumb and finger: about five minutes after this is done, and before the paint is dry, take a piece of soft muslin, and lightly rub away any air bubbles that remain, or have caused little specks.

The screen will warp if you attempt to do one side first, and when that is dry, paint the other; therefore, both sides must be done at once. In half an hour the first coat will be dry, and the second may be put on: guiding the brush in a contrary direction, and rubbing away the air bubbles as before. This is to be repeated to as many as five or six coats, when it may be painted over.

If the wood you are preparing be of a dark colour it will be necessary to give it two or three more coats of paint, to make it look throughout white.

If porous, like mahogany, the paint must be mixed much thicker for the first two coats, to fill up the pores; and should be rubbed smooth with the muslin for a longer time than before, after which, it should be used thin to make it lie evenly.

The isingglass mixed in the paint will answer the purpose. The use of it is to prevent the varnish which is afterward to be applied, from penetrating the wood or paint so much as to cause a disagreeable yellow tint, which it will do if not so prevented. To cover a table top, or other object with paper for the inlaying, we proceed by pasting two sheets of drawing paper over it; to do which, rather strong paste should be used, and spread over the back of the drawing paper with a stiff brush, and when the first coat of paste is nearly dry a second may be put on, and the paper placed on the subject and well pressed with a cloth or handkerchief; the following day the second sheet of paper may be put on in the same manner, and after this is dry, the isingglass

should be put on twice, on account of the paper absorbing more than the wood.

The isingglass which is applied, draws the surface of the paper together and makes it smooth for the painting; and the varnish, which is used after the painting is done, entirely removes the rough appearance on the surface of the paper. This work is varnished and polished exactly as the transfer work, only it requires fewer coats of varnish; about twelve will be quite enough when it is to be polished.

It is easy to make the liquid black and white, if you have the proper materials—good lampblack and pure flake white. The best way for you to ensure this will be to purchase a cake of each, ready prepared for water-colour painting, then wrapping one of them up loosely in a piece of strong brown paper, break it in pieces with a hammer, by knocking it upon some hard material, such as a hearthstone, and put it into a teacup with enough soft water to cover it, then leave it till the next day, when you may add some thin gum water, and a little vinegar for the black, and gin for the white, to prevent it from getting mouldy; stir it about well with a camel-hair brush in tin, and pour it into a bottle, when it will keep for several months and be fit for use whenever you want it. If you desire to make a large quantity at any time, you must purchase the lampblack and the flake white in a dry state, and grind them upon a ground-glass slab of about a foot square, with a ground-glass muller, in this manner: put about a tablespoonful of colour upon the slab and enough thin gum water to moisten it: and mix them together with a palette-knife, add a little plain water and grind with the muller until all appearance of grittiness has been removed; turning it over with the knife from the sides to the middle as it gets spread out; this is rather laborious work, and when properly done will occupy about half an hour for the quantity mentioned. It may be taken up with the palette-knife, and put into a bottle after a little gum-water has been added, a like quantity may then be done in the same way, until you have as much as you require. If you intend to keep it by you for any time, add a little spirits as before. When the colour is on the slab it should be only just wet enough to admit of moving the muller without great labour, because, if made too wet it will never become sufficiently fine. You will readily perceive, from these instructions, that when you can procure the paint ready prepared it will be decidedly preferable.

ACTIVE EXERCISES—OF POSITION.

OF STANDING GENERALLY.

Before entering into a detail of exercises, it is necessary to attend to position. A standing position is the action by which we keep ourselves up. Indeed this state, in which the body appears to be in repose, is itself a sort of exercise; for it consists in a continued effort of many muscles. The explanation which we must give of it will somewhat facilitate that of walking. Every one has observed that during sleep, or in a fainting fit, the head inclines forward and falls upon the breast. This is in accordance with the laws of gravity; for the head, resting upon the first vertebra at a point of its base which is nearer its posterior than anterior part, cannot remain in an upright position, except by an effort of the muscles of the back of the neck: it is the cessation of this effort that causes it to fall forward. The body also is unable to remain straight, without fatigue. The vertebral column being placed behind, all the organs contained by the chest and abdomen are suspended in front of it, and would force it to bend forward unless the strong muscles of the back held it back. This may be seen in ladies whose situation is delicate, who are compelled, in consequence of the anterior part of the body being heavier than usual, to keep the vertebral column more fixed, and even thrown backward. The same observation may be made with regard to the pelvis, basin, or lowest part of the trunk, which, by its conformation, would bend forward upon the thighs, if not kept back by the great muscles that form the hips. In front of the thighs again are the muscles which, by keeping the kneepan in position, are the means of preventing the knee from bending. Lastly, the muscles forming the calves of the legs, by contracting, are the means of preventing the ankles from bending. Such is the general mechanism of the standing position It is, therefore, as observed, a concurrence of efforts: almost all the extending muscles are in a state of contraction all the time that this position is maintained. The consequence is a fatigue which cannot be endured for any great length of time. Hence, we see persons in a standing position rest the weight of their body, first on one foot, then on another, for the purpose of procuring momentary ease to certain muscles.

For this reason also, standing is still more fatiguing than walking, in which the muscles are alternately contracted, and extended.

A question of importance on this subject, is wha. position of the feet affords the greatest solidity in standing. Here it is sufficient to state the fact, that the larger the base of support, the firmer and more solid will the position be.

We now adopt, as a fundamental one, the military position, which has been found practically the best, by those who have nothing else to do but to walk.

FUNDAMENTAL POSITION.

The equal squareness of the shoulders and body to the front is the first and great principle of position. The heels must be in a line, and closed; the knees straight; the toes turned out, with the feet forming an angle of sixty degrees; the arms hanging close to the body; the elbows turned in and close to the sides; the hands open to the front, with the view of preserving the elbow in the position above described; the little fingers lightly touching the clothing of the limbs, with the thumb close to the forefingers; the belly rather drawn in, and the breast advanced, but without constraint; the body upright, but inclining forward, so that the weight of it may principally bear on the fore part of the feet; the head erect, and the eyes straight to the front.

To these brief directions, I must add that, in standing, the whole figure must be in such a position, that the ear, shoulder, haunch, knee, ankle, are all in a line; that it must be stretched as much as possible, by raising the back of the head, drawing in the chin, straightening the spine, rising on the hips, and extending the limbs; that the object of keeping

the back thus straight is to allow of standing longer without fatigue; that it is important to expand the chest and to throw the shoulders back, with the shoulderblades or scapulæ quite flat behind; and that though by men, in military instructions, the body is thus inclined forward in standing without arms, yet when these are assumed, the body is immediately thrown about two inches backward, into a nearly perpendicular position.

This position therefore, will be modified in standing at ease, in walking, and especially in ordinary walking; but it is an excellent fundamental position, and it cannot be too accurately acquired. Females find the standing position very fatiguing, however it may be modified.

In consequence of the pelvis, basin, or lowest part of the body being larger in them than in man, the bones of the thighs are more separated above, and as they necessarily approach more closely below, this produces an inclination to be in-kneed. It is true the feet are not so close together as in men; but as they are smaller and do not so well support a standing position in front, where there is most need of support, it is, in fact, more difficult for women.

We may remark, however, that the pelvis not being developed before the age of puberty, the standing position of young girls is the same as in youths. What has now been said regards the general position of the whole figure; and to this the more particular positions of the feet which are the elements of dancing, are properly a sequel. Both, therefore, on their own account and for the sake of what follows, they must be next described. It is of great importance that they be thoroughly understood and accurately and easily performed.

POSITIONS IN DANCING.

In all these positions, the body should be kept perfectly erect; the shoulders thrown back, and the bust advanced; the arms rounded; the forefinger and thumb occupied in holding out the dress; the other fingers neatly grouped. The first position is formed by placing the heels together and throwing the toes back, so that the feet form a straight line.

In the first attempts at this position, the toes should not be more turned out than will admit of the body maintaining its proper balance: they must be brought to the correct position only by degrees, until the pupil can place the feet, heel to heel, in a straight line, without affecting the steadiness of the body or arms.

The second position is formed by moving the right foot sidewise, from the first position to about the distance of its own length from the heel of the left. Of the foot thus placed, the heel must be raised, so that the toes alone rest on the ground; the instep being bent as much as possible, and the foot retaining its primitive direction outward. In this case, as in the first, the foot should be brought by degrees correctly to perform this action; and the toes should be gradually thrown back as far as the pupil's power to preserve her balance will permit.

The third position is formed by drawing the right foot from the second position, to about the middle of the front of the left; the feet being kept close to each other, so that the heel of one foot is brought to the ankle of the other, and seems to lock in with it: thus the feet are nearly half crossed.

In drawing the right foot into this position, its heel must be brought to the ground as it approaches the left, and kept forward during its progress, so that the toe may retain its proper direction outward.

The fourth position is formed by moving the foot

about its own length forward from the third position, keeping the heel forward, and the toe backward, during the progress of the foot; and it must be so placed as to be exactly opposite to the other heel, or rather to the centre of the left foot, so that the feet half cross without touching.

In moving the right foot forward, the toe may be slightly raised.

The fifth position is formed by drawing the right foot back from the fourth position, so that its heel is brought close to the toes of the left foot, the feet being completely crossed.

The right heel, in this position, is gradually brought to the ground as it approaches the left foot, precisely as in formerly drawing the left foot from the second to the third.

In all these positions, the left foot is to retain its primitive situation.

In all these positions, also, the knees may be bent without raising the heels in the least from the ground; and to give flexibility and strength to the instep, they should be often practised on the toes.

MISCELLANY.

DISCOVERY OF INDIAN SKELETONS.

An interesting discovery was made a few weeks ago, by a Mr. M'Call, which has given rise to much speculation in Upper Canada. When travelling along the Guelph road, and being about ten or twelve miles distant from Dundas, he was struck with the singularity in shape and appearance of a tolerably large piece of ground. Desirous of ascertaining the cause, he, with the assistance of one of his neighbours, fell to work, removed the earth for about four feet, and found vast quantities of human bones. Subsequently, ten other pits have been opened, and in each there are great numbers of skeletons and Indian cups, kettles, pipes and warlike weapons. Dr. A. C. Dayton, who visited the spot, and examined the different excavations, makes the following conjectures:—

"There are in all, therefore, eleven pits, and there must have been nearly two thousand persons slaughtered and hastily interred—from that there was slaughter, the irregularity with which they are hurried into the graves, taken in connexion with the fact that a great many of the sculls bear marks of violence, fully proves. The question arises, who were the parties concerned, and when did this slaughter take place? That they were Indians there is no room to doubt—for apart from the improbability of such a slaughter of the whites being left unrecorded and untold, the beads, pipes, and other ornaments furnish sufficient evidence that they were not whites. There are trees growing out of some of the graves of the same size as those of the surrounding woods. There is a beech-tree about two feet in diameter, growing upon one, and the woodmen say it must be near two hundred years old. That it was after the introduction of the French into this country is evident from the glass beads, axes, and kettles, which are certainly not of Indian manufacture. Quebec was settled in 1608, two hundred and twenty-eight years since, and it is highly probable that trading posts were established at different places along the lake shore, soon afterward—something previous to 1636, or two hundred years ago. This being the case, we are obliged to believe that the battle was between the Indians and French, or between two tribes of Indians, some time in the early part of the seventeenth century. If the French had been one of the parties, some record of the transaction would have been preserved, and some evidence of the use of the fire-arms would probably have been found. But this is not the case; a sabre or French sword was found, but it had evidently belonged to an Indian, who, ignorant of the use, had attempted to form it into a saw. It was an Indian battle, but of what tribe we can only conjecture. The fact that in each grave the ornaments are different from the rest, countenances the idea that the dead of each was buried apart. A better position to receive an attack could hardly have been selected than the hill on the summit of which the graves have been found. I have been credibly informed that there are heaps of ashes and other indications of a large Indian settlement, within a few miles of the graves, and that a large quantity of parched corn was found some twenty years since, on the farm of a Mr. Myers, about ten miles distant. There are many proofs that the country around has been cleared at some former period."

If we mistake not, there are at the present day settlements of Indians not far removed from the place described, and it is more than probable that they will have some traditionary history existing among them of the engagement in which so many people appear to have been slain.

A discovery has recently been made in the valley of Nerbudda in India, of a nature extremely interesting to Naturalists. Many fossil skeletons have been found, of a quadruped, that doubtless existed before the deluge, and which has hitherto been unknown. It has four horns on its head, and is called the *Sivatherium*.

USEFUL KNOWLEDGE.

Locust-tree.—A Mr. Hale, of Westhampton, Mass., obtained last year for thirteen locust-trees, delivered at the river in West Springfield, fifty cents per cubick foot, including all the limbs except those quite small. The trees measured 306 feet, and amounted to 153 dollars for less than two and a half cords of wood. Let us make this fact the basis of a little calculation. The locust will thrive abundantly on favourable soils when planted a rod apart, or one hundred and sixty on an acre. Mr. Hale's trees average him eleven dollars seventy-three cents a tree, which for an acre of trees of the same size would bring one thousand eight hundred and seventy-five dollars, twenty cents. It has been estimated that six locust-trees, of twelve years' growth, will produce a cord of wood, and in many instances they have far exceeded it; but to be on the safe side, we will take six and a half, and let them grow eighteen years instead of twelve, and then the avails of the acre will exceed one hundred dollars a year for the eighteen years. If this is not a handsome profit we know not what is: and there is this additional circumstance attending it; locust timber will not fall in price, as the demand from the nature of the case must continually increase. Then plant the locust by the wayside, fill up the vacancies in your woodlands with it—remembering that every one that grows, puts into your pocket one hundred per cent. per annum.

Save your old bread.—Every person may not know, what however is true, that pieces of old bread, crumbs, &c., being soaked and mixed up with dough, in making new bread, improves it very much. Try it, and you will never allow pieces of dry bread to be lost afterward—especially when flour is nine or ten dollars a barrel.

Russian Mode of Making Butter.—Observing in a monthly scientifick journal, an article on the subject of making butter in the winter, I beg leave to furnish a few particulars on that subject, as practised in Russia, since the year 1816, and which may, perhaps, be of some service to those who may be induced to make the experiment either in summer or in winter. Being in that country in the year 1817, I was informed by a Russian nobleman, that the proprietor of an extensive estate (also a nobleman of high rank) had discovered a new mode of making butter, and received letters patent from the emperour as a reward for the discovery, and which he stated as being at that time in full and successful operation. The process consisted in boiling, or rather that species of boiling called simmering, the milk for the space of fifteen minutes in its sweet state—observing at the same time not to use a sufficient heat to burn the milk; it is then churned in the usual manner. He also stated no difficulty ever occurred in procuring butter immediately, and of quality far superiour to that made from milk which had undergone vinous fermentation: and that in addition to its superiour flavour, it would preserve its qualities much longer than that made in the ordinary mode; that the additional advantages were, that the milk being left sweet, is possessed of almost the same value for ordinary purposes, and by some considered more healthy, as they supposed the boiling or scalding to destroy whatever animalcula it may have contained.

If the above process should upon experiment prove of sufficient importance so as to bring it into general use, particularly in the winter, it would perhaps be to the advantage of those who may practise it, to have their milk scalded in vessels calculated to stand in the kettle or boiler, by which mode the danger of burning the milk would be avoided, for it is ascertained that milk only burns on the edges of its surface, or where it comes in contact with the sides of the vessel in which it is heated, and which can never happen in double kettles, or where one is placed within the other. London Mirror.

Spider-Silk.—It is said that M. Bon, a French gentleman, collected about twelve or thirteen ounces of the bags or balls of shortlegged spiders, and after causing the dust to be beaten out of them, he washed them clean—steeped them in soap, saltpetre, and gum-arabick, boiling them in this preparation for a few hours. He then dried and carded them—thus obtaining a beautiful silk of an ash colour. M. Bon had stockings and gloves made of this material, which he presented to the French academy, and to the English royal society. After some further experiments, he was of opinion that the spiders yielded more silk in proportion, than the common silkworm; for example, he said, that it only required two ounces of spider-silk to make a pair of stockings, whereas it takes seven or eight of common silk.

B. D. Times.

Pumpion Bread.—Take the rind from the pumpion, cut it into slices and boil it; when it is soft enough, strain it in a colander, and mash it up fine; and in this state it may be used for pies or mixed with flour for puddings, cakes, &c. For bread it may be made up with wheaten flour in proportion of one third to one half. The sponge must be first set the ordinary way with yest in the flour, and the pumpion worked in it as it begins to rise. The rule is to use as much pumpion as will bring the dough to a proper degree of stiffness without water. The pumpion must not be so hot as to scald the yest. It requires more baking than wheaten bread. This bread is very pleasant and very wholesome.

Nourishment for Horses.—The practice is becoming general in Silesia, of feeding horses with bread. After an experience of four years, an intelligent husbandman is convinced of its utility in the relation of economy and health. The bread is made by taking equal quantities of oatmeal and ryemeal, mixing it with leaven or yest, adding one third of the quantity of boiled potatoes. To each horse is given twelve pounds per day, in their rations four pounds each. The bread is cut into small pieces, and mixed with a little moistened cut straw. By this means he saves in feeding seven horses, forty-nine bushels of oats in twenty-four days; while the horses perform their common labour, and are much better in their looks, health, and disposition.

N. E. Farmer

LITERARY NOTICES.

Mr. Midshipman Easy: by the Author of Peter Simple, Jacob Faithful, &c. Philadelphia: E. L. Carey, and A. Hart, 1836. A new novel from the pen of CAPT. MARRYATT, who is certainly inimitable in telling a nautical story. The present tale, although by no means equal to his Jacob Faithful, will well answer to while away a few wintry hours. It may be found in New York, at the bookstore of Israel Post & Co., 88 Bowery, (where by the way, may be seen most of the periodical publications of the United States,) and in Boston and Cincinnati, at the bookstores generally.

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The Miscellaneous Works of HENRY MACKENZIE, ESQ. Complete in one volume. New York: Harper and Brothers. An extremely neat and beautiful volume of more than five hundred pages, printed on a clear type and on fine paper, and embellished with a line engraving of Mackenzie. It embraces a memoir of the author by Sir Walter Scott, corrected and enlarged from undoubted authority, next comes the "Man of Feeling," which is doubtless familiar to most of our readers; this is followed by Mackenzie's communications to the "Lounger," which contributed much to the celebrity acquired by that series of papers. The "Man of the World," occupies about one hundred and sixty pages of this large volume, and this is followed by the affecting, history of "Julia de Roubigné," over which thousands have dropped a tear. The work closes with papers from the Mirror.

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An Argument for the Truth of Christianity in a series of Discourses, by I. D. WILLIAMSON of Albany. New York: P. Price & Co., No. 2 Chatham Square. The author of this valuable little book remarks in his preface that he has not been an inattentive observer of the efforts of infidels and their mode of warfare. In former times it was an object with them to array science against the gospel, and hence they assumed at least a show of learning. This attempt has been thwarted, and by many able works it has been made to appear that every discovery of genuine science is in harmony with Christianity. Now however, they no longer attack schools but have gone to the common people, and the leading object appears to be to array reason against religion. Under these circumstances the author has thought that it would be useful to meet them here and show that sound reason approves and sanctions the gospel of our salvation. This the author has done in thirteen brief practical and common sense sermons, and he has done it well.

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The Poor Rich Man, and the Rich Poor Man; by the author of Hope Leslie, the Linwoods, &c. New York: Harper & Brothers. A highly interesting and useful book, which may be read with advantage not only by those for whose use it was more immediately intended, but by all who have the happy faculty of seizing the moral of a tale and applying it to their own case. Miss Sedgwick is certainly rivalling her fellow-worker and coadjutor, the Rev. Joseph Tuckerman, to whom, as *the poor man's friend,* this unpretending little volume is dedicated. It may be found at the principal bookstores.

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Phrenology Known by its Fruits; being a brief review of Doctor Brigham's late work entitled, "Observations on the influence of Religion, upon the Health, and Physical welfare of Mankind," by DAVID MEREDITH REESE, M. D. New York: Howe & Bates, 76 Chatham Street, 1836. We cannot agree with Dr. Reese in his opinion of Phrenology; we think that the science rests on facts; and while it is readily admitted, that the nice analyses of character made by many of its ardent votaries, may be incorrect, yet we remark that this argues nothing against the science, as that it is far from perfect; the time however, is coming when its details will be better understood. In regard to the moral effects of the science which the doctor seems to dread so much, we think that he is needlessly alarmed. Many of the strongest advocates of phrenology both in this country and in Europe are truly pillars of the Christian church, both by their professions and practice. As a work of a controversial character, however, this book is highly creditable to the doctor, and we think he has ample reason to be satisfied. Let the friends of phrenology read it.

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Memoir of the Prince of Canino. By HIMSELF. Translated from the French. New York: Harper & Brothers. We are afraid that if our readers anticipate much from this book they will be sadly disappointed. It is a miserable translation of a book which cannot be much in the original language. The New York publishers seem to be aware of this, having fixed the retail price at thirty-seven and a half cents.

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The Passion Flower. By MISS ANNA JOHNSON REED, daughter of Captain Samuel C. Reed. New York: published by S. C. Reed, 1836. The number before us, is that for September, and forms the twenty-ninth. This beautiful little periodical is as flourishing as one of our fall flowers. It comes to us, neatly bound in red morocco, with gilt edges. It is issued on the fifteenth of every month; each number contains two coloured engravings of flowers and ninety-six pages of letter-press together with leaves of teinted paper, for crayon sketches or desultory thoughts. Subscription price five dollars per annum. It is issued by Samuel C. Reed, 536 Houston Street, New York; and there is an agency for it at Shepard's, 189 Broadway.

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An Analysis of the Derivative words in the English Language: or a Key to their precise Analytick Definitions, by Prefixes and Suffixes, Designed to furnish an Easy and Expeditious Method of Acquiring a Knowledge of Derivative Words, from a Knowledge of their Component Parts. By SALEM TOWN, A. M. Third Edition, carefully Revised, Enlarged, and Adapted to Schools of all grades. New York: Published by Harper & Brothers. We are happy to see from the preface to this valuable book, that a proper estimate of its merits has been attached to it by the publick. The author observes: "The first edition of this work, was the first effort of the Author, and it is believed to be the first attempt to present the *component parts* of *English* derivative words, in their *distinctive* character, and exhibit their combination in any thing like *system.* The practicability of the work had been under consideration, and the materials principally collected, many years before the plan was fully carried out. The first edition was at length presented, and notwithstanding its imperfections, has fairly *settled* the question, as to the importance of the plan proposed, and the course to be pursued in acquiring a knowledge of derivative words. The experiment has been made, and repeated under such circumstances, that the Author, from his own observation of facts, will now *guaranty* to communicate more knowledge of *derivative* words in the English language, to any class of English scholars over twelve years of age, in twelve weeks, than ever *was* or ever *can* be communicated, in the ordinary way, to those of a similar age, in twelve months."

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We neglected in our last number to state that the sketch of Auburn, was taken from the Auburn Journal. We do not regret the omission, as it affords us an opportunity of saying that among the exchange papers which come to the Family Magazine, we see no paper which is conducted with more devotion to the interest of its patrons than the paper mentioned above.

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To those of our readers who are anxious to have a larger view of Charleston, S. C. than that furnished in the present number, we recommend the coloured print from the burin of Keenan, a very deserving artist and a native of that city. We would suggest to all those who are interested in the Charleston and Cincinnati railroad to encourage native talent by purchasing this fine engraving.

GEORGE BROWN, Boatswain's Mate, U. S. Navy.

THE BOATSWAIN'S MATE.

BY A BROTHER CRUISER.

THERE stands the outer man of George Brown—boatswain's mate, in the United States navy!—a perfect specimen of a true American seaman; and a better fellow than whom, never piped to grog or reigned at a gangway.

Reader! thou beholdest in the picture, the spar-deck of a sloop-of-war, part of the main rigging, a couple of belaying-pins to throw the bight of this yarn over, and "No. six," or "the gunner's daughter," whom many a lad has kissed to his sorrow. A stout, strapping wench she is, a medium twenty-four; not one of your bull-dog, big-muzzled carronades, that are only good at close quarters, but a little of the greyhound species—sure for a long run. See her side-tackles and breeching, how gracefully they coquet over her sun-burned cheeks; and, gallantly standing by her side, is our friend Brown, with one hand on his hip, and the other very familiarly upon the young lady.

Your shore folk, when they become rich enough to think of *family portraits*, get themselves depicted upon canvass, sitting in an easy chair, looking wondrous wise, with the dexter hand grappling a gaudily-bound volume. Not so with my shipmate—he planks it in a wood-cut, and stands at his quarters, with his hand on a volume that, erewhile, loudly proclaimed the honour and glory of his country. Survey the man from truck to keelson, take all his bearings, and say—could manhood be better personified?

He is in his winter muster-dress: black hat, highly varnished, with a profusion of riband, and set on the after part of his head, whilst the seaman's pride—a smooth, glossy forelock—rests upon his manly brow. The frock is of the finest white duck, except the collar and bosom, which are blue nankeen, bordered with white tape, and the corners touched off with white cotton stars. On the back of the collar is worked an anchor; and at the bottom of the bosom is stamped the initials of our hero—G. B.—by way of a hint to the afterguard banditti, that the property aforesaid has an owner with a name. A little lower down, and hid from vulgar gaze, is the number of his bag and hammock. The jacket of blue, to be sure, is not quite so fine as it might be; nor does it fit with more mathematical nicety than do "Uncle Sam's" slops generally; but the slashed cuffs and bright eagle of our starry button, throw into the shade such trifling deficiencies, while the two foul anchors worked on the sleeves, with gold and silver thread, decide at once, in the petty officer's view, the fashion and elegance of the garment.

The trousers are in themselves unique: of blue cloth, with no seam on the outside, very taut around the waist, sitting to the figure over the hips as smoothly as the skin itself, and fastened behind with a bunch of riband; legs sufficiently wide for ventilation and easy movement, and thé suspenders or braces—why, bless your soul! it is only when a sailor has committed crime, that he is brought to the *gallows*, and he despises the use of "*topping-lifts*," as much as he would that of corsets!

The chain you see slung around his neck, is of solid silver: it is his "regalia"—the insignia of his office. No lord-mayor of London was ever more proud of his chain, than is George Brown of *that* and its *appendage*. Look where it falls over his thumb. You see, stretching from the "*breeching*" to the "*quoin*," a crooked silver tube. This is his "*call*"—his harmonicon—his shepherd's pipe, with which he enticeth the sheep from the lazy fold, the birth-deck; with which he discourseth in musick that hath no gamut; nay, that hath no parallel but itself, in this or any other world. *Musick*, unlike that of Orpheus, which draweth no *wicked* stones about his head—and for the reason that none but "*holy stones*" are allowed to be in a man-of-war. That "call," my friend, *swayeth* more *choice spirits* with its witching melody, than the fiddle of Paganini—that is, when there's a "whip" on the main yard, and the "launch alongside with a cargo of Monongahela!" Hang your hurdy-gurdies and musick-grinding machines, but give me the shrill clear note of a boatswain's call, piping all hands to reef topsails in a midwatch, insinuating its beautiful sound to the auditories of a poor devil, just turned in, and walking it off in a ten-knot sleep.

No common mutations of fortune can ever induce a boatswain's mate to part with his chain and call; both are held sacred! In passing a pawnbroker's shop, in Chatham street, the other day, I saw one dangling from a hook in the window. The tear stood in my eye. Poor fellow! how awful must have been the fate that compelled the rightful owner to part with it!

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Such a picture as that, I love to look upon—a real man-of-war's man—a hearty, able-bodied, American seaman. One, whose very look indicates a love of enterprise, firmness of purpose, and a reckless daring that would command the attention of any man. Unlike the seafaring man of any other country, is the American sailor. He never forgets the proud circumstance of his birthright. He is never a fawning, cringing, sycophantick creature, but *always a man!* True, he takes off his hat, and smooths down his forelock, when he addresses a superiour officer upon any important occasion—but this is the custom of discipline, and like a sensible man, knowing the necessity of military authority, he merges so much of his republicanism as would interfere with it; but by so doing, he commits no violence on his feelings as a freeman.

I would willingly commute the minute, automaton discipline, so loudly boasted of in other navies, for the national pride, the high moral feeling, the *home endowments* of the American sailor. In war, it is not his *master's* battle he fights, but his *own;* he feels himself a component part of the nation. His father fought and felt so before him, and the united reverence for country and sire, makes him *more* than equal to an enemy, not strengthened by these ennobling feelings. From what class of society is the foreign seaman taken! From the lowest, the purely necessitous, who, when a choice is given them of starvation, the workhouse, or the sea, generally choose the latter. Is it so here? No. Bread can be obtained in this country at a much cheaper rate, a more comfortable, less dangerous and laborious manner, than by seeking it at sea. What then induces the sons of our farmers, mechanicks, and merchants—lads, frequently, of good morals and education—to relin-

quish the comforts of home, and ship in the merchant or naval service? A love for adventure—a truly American propensity—a cherished hope, which impels and governs our countrymen all over the globe, of being able by some lucky hit, when once afloat on the tide of human affairs, to gain either fame or fortune. Thus, many of a superiour education are to be found amongst the seafaring class with us, who, though disappointed in their early and Quixotick expectations, yet continue in the hardy occupation of their younger years, contented with a livelihood that could be more easily, but not more bravely earned, and not always receiving that kind consideration, from their fellow-citizens, to which they are eminently entitled.

Such are the men, that place the moral standing of American seamen upon an eminence, not easily attained by foreigners, and to that class belongs the owner of the portrait before you. Man and boy, for five-and-twenty years, he has worn a blue jacket. His feet have never been lashed to a "grating," or his wrists adorned with a pair of "darby's." From his *entré* in the service on board the gallant Constitution—where as powder-boy, he acquired credit for his agility—he gradually worked his way upward in rank, from the cleaner of a priming-wire, to the furbisher of a cutlass, from first captain of a gun, to first captain of the foretop, till the next step in promotion, put him in rightful possession of the "*Colt*" and "*Call.*" In every situation he has done his duty as a man. He is not one of your envious "beach-combers," who, if a good man was promoted above him, would grumble and swear that the service was going to ruin; or who, if a poor devil was launching from bad to worse, would "slush down his ways," that he might go the faster. No—such meanness never lay coiled away in his bosom. A spare shot never rusted in his locker, when a distressed shipmate might have occasion for its use; and, as the rarest virtue of a seaman, I may conclude by remarking, that, he was never appealed to, for the loan of his pea-jacket in a rainy watch, and known to refuse it!

The last we heard of him, he had just warped into hospital dock, to repair slight damages; from whence, as report saith, he is to emanate with all the dignity and long "toggery" of a regular-built, Warranted Boatswain.

Naval Magazine.

AMERICAN CAVERNS.

On the Ohio, twenty miles below the mouth of the Wabash, is a cavern, in which are found many hieroglyphicks, and representations of such delineations as would induce the belief, that the authors were, indeed, comparatively refined and civilized.

It is a cave in a rock, or ledge of the mountain, which presents itself to view, a little above the water of the river when in flood, and is situated close to the bank. In the early settlement of Ohio, this cave became possessed by a party of Kentuckians, called "Wilson's gang." Wilson in the first place, brought his family to this cave, and fitted it up, as a spacious dwelling, erecting a signpost on the water-side, on which were these words: "Wilson's Liquor-Vault and House of Entertainment" The novelty of such a tavern induced almost all the boats descending the river, to call for refreshments and amusement. Attracted by these circumstances, several idle characters took up their abode at the cave, after which it continually resounded with the shouts of the licentious, the clamour of the riotous, and the blasphemy of gamblers. Out of such customers Wilson found no difficulty in forming a band of robbers, with whom he formed the plan of murdering the crews of every boat that stopped at his tavern, and of sending the boats manned by some of his party, to New Orleans, and there sell their loading for cash, which was to be conveyed to the cave, by land, through the states of Tennessee and Kentucky; the party returning with it being instructed to murder and rob, on all good occasions on the road.

After a lapse of time the merchants of the upper country began to be alarmed, on finding their property make no returns, and the people never coming back. This naturally led to inquiry, and large rewards were offered for the discovery of the perpetrators of such unparalleled crimes. It soon came out, that Wilson, with an organized party of forty-five men, was the cause of such waste of blood and treasure; that he had a station at Hurricane island, to arrest every boat that passed by the mouth of the cavern, and that he had agents at Natchez and New Orleans, of presumed respectability, who converted his assignments into cash though they knew the goods to be stolen, or obtained by the commission of murder.

The publicity of Wilson's transaction soon broke up his party; some dispersed, others were taken prisoners, and he himself was killed by one of his associates, who was tempted by the reward offered for the head of the captain of the gang.

This cavern measures about twelve rods in length, and five in width; its entrance presents a width of eighty feet at its base, and twenty-five feet high. The interiour walls are smooth rock. The floor is very remarkable, being level through the whole length of its centre, the sides rising in stony grades, in the manner of seats in the pits of a theatre. On a diligent scrutiny of the walls, it is plainly discerned that the ancient inhabitants at a very remote period, had made use of the cave as a house of deliberation and council. The walls bear many hieroglyphicks well executed, and some of them represent animals, which have no resemblance to any now known to natural history.

This cavern is a great natural curiosity, as it is connected with another still more gloomy, which is situated exactly above, united by an aperture of about fourteen feet; which, to ascend is like passing up a chimney, while the mountain is yet far above. Not long after the dispersion and arrest of the robbers who had infested it, in the upper vault were found the skeletons of about sixty persons, who had been murdered by the gang of Wilson, as was supposed. But the tokens of antiquity are still more curious and important than a description of the mere cave, which are found engraved on its sides within.

In this cave, it appears, that in addition to numerous familiar animals and devices, there are sketched on the rock the figures of several animals now extinct: among which are three, much resembling the elephant, the tail and tusk excepted.

[Hamet, the pilot of Lord Nelson, at the battle of the Nile.]

LIVING COSTUMES.

THE above cut represents the costume of Hamet, the pilot of Lord Nelson, at the battle of the Nile. The engraving is from an original drawing with which the proprietors of the Family Magazine have been politely favoured by Capt. Perry, U. S. N. A brief description of this important battle, may not be unacceptable to our readers.

Previous to this ever-memorable battle, Nelson had been actually engaged against the enemy one hundred and twenty times; had lost his right eye and arm, and been otherwise severely wounded. Great, however, as had been the services of this enterprising and skilful seaman, it was in the year 1798 that an important and glorious victory, entitled him to still more distinguished laurels. The government of France had sent an expedition of magnitude into Egypt, and it became that of Britain to use every effort to neutralize or destroy it.

The French fleet, with Bonaparte and his well-appointed army on board, had left Toulon on the twenty-second of May; but it was not till the eight of June that Sir Horatio Nelson, (who had been sent by Earl St. Vincent into the Mediterranean, with a small squadron, in the hope of discovering them,) was joined by the main body of the fleet, viz., eleven sail of the line, under Captain Trowbridge, which had been despatched to reinforce him. No instructions, however, were sent to him in regard to the course he was to steer; nor was there any certain information to be obtained respecting the destination of the French expedition. The admiral was therefore left entirely to his own judgment; but he knew that the enemy had sailed with a northwest wind, which naturally led him to conclude that their course was up the Mediterranean. He first steered toward Corsica and Elba, then made toward the Roman coast, and afterward bore up on Naples, in the hope of receiving some satisfactory information; but the most he could learn was, that though many thought the plundering of Algiers was the object of the French armament, yet a more general report was current that they had gone to Malta. At Sicily, he obtained intelligence from the British consul that

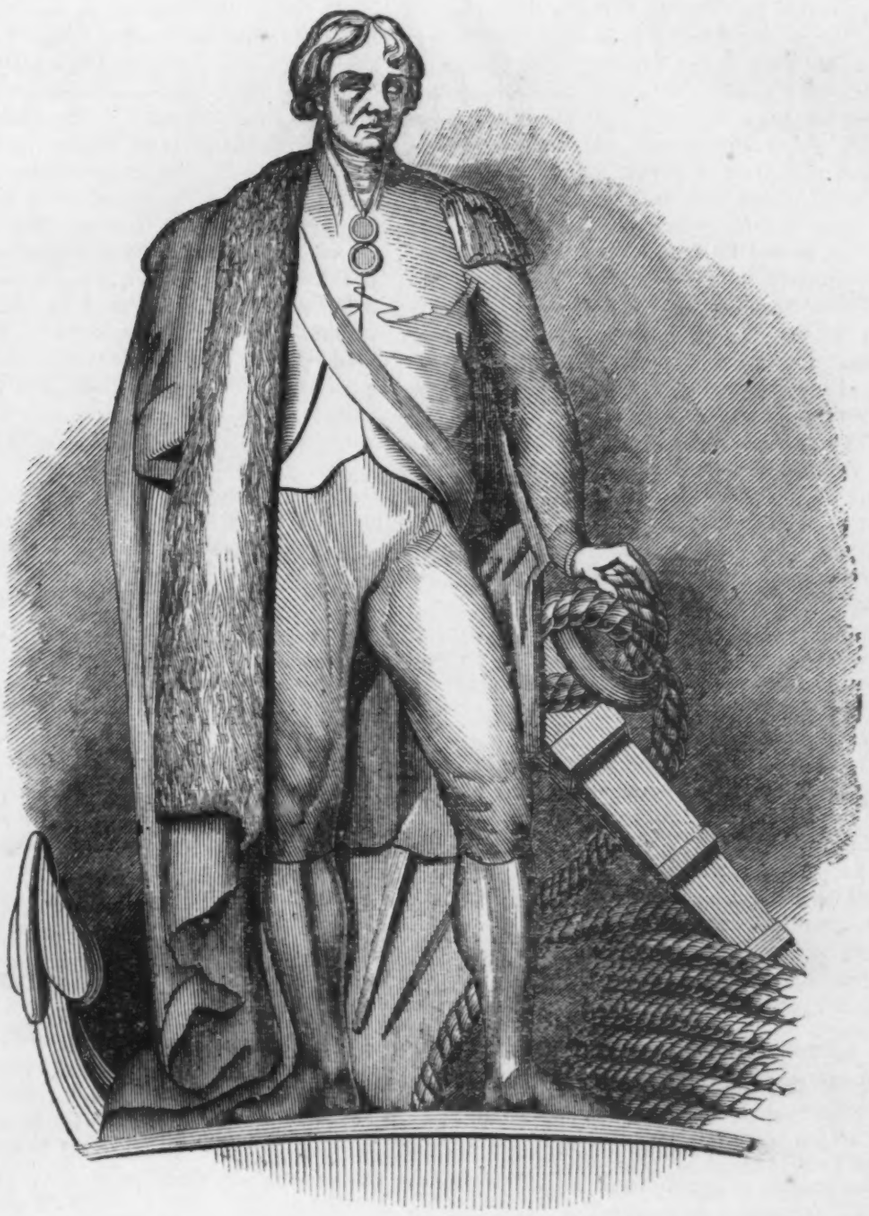
Malta had actually surrendered; and soon afterward, it was known that the French had left the island on the eighteenth, with a fresh gale from the northwest. Nelson was not long in determining what course he should take, and made the signal to bear-up and steer to the southeast with all possible sail. From that day, till the twenty-ninth, only three vessels were spoken with, two of which had come from Alexandria, and had not seen any thing of the enemy's fleet; the other had come from the Archipelago, and had, likewise, seen nothing of them. At length, arrived at Alexandria, and no sign of an enemy, nor any intelligence that a French fleet was probably on its way thither, it became the subject of deep and anxious deliberation with the admiral what course the French fleet could possibly have taken, and what was its ultimate destination.

It would be tedious, however, to enter into further details of the pursuit; suffice it to say, that, after visiting both shores of the Mediterranean, and carrying a press of sail night and day, the British fleet again reached Alexandria, on the first of August, where the admiral had the satisfaction of seeing the French flag flying in the harbour. He had the highest opinion of his crew, and justly placed the firmest reliance on the valour and conduct of every captain in his squadron. It had been his practice, during the whole of the cruise, whenever the weather and circumstances would permit, to have his captains on board the Vanguard, where he would fully develop to them his ideas of the best modes of attack, and such plans as he proposed to execute upon falling in with the enemy, whatever their situation or position might be, by day or night; there was no possible condition in which they could be found, that he did not take into his calculation, and for the most advantageous attack of which, he had not digested and arranged the best possible disposition of the force which he commanded.

The enemy's fleet was first discovered by the Zealous, Captain Hood, who immediately communicated by signal, the number of ships (sixteen) lying at anchor in line of battle, in a bay upon the larboard bow, which was soon found to be Aboukir bay. The admiral hauled his wind that instant, and made the signal to prepare for battle, by an attack on the enemy's van and centre, as they lay at anchor, and according to a plan he had before developed. His idea, in this disposition of his force, was first to secure the victory, and then to make the most of it, as circumstances might permit. As all the officers of the British fleet were totally unacquainted with Aboukir bay, each ship kept sounding as she stood in. The enemy appeared to be moored in a strong and compact line of battle, close in with the shore, their line describing an obtuse angle, in its form, flanked by numerous gunboats, four frigates, and a battery of guns and mortars on an island in their van. This situation of the enemy seemed to secure to them the most decided advantages, as they had nothing to attend to but their artillery, in their superiour skill in the use of which the French so much prided themselves, and to which, indeed, their splendid series of land victories were, in general, chiefly to be attributed.

The position of the enemy presented the most formidable obstacles; but Nelson viewed these with the eye of a seaman determined on attack; and it instantly struck his eager and penetrating mind, that where there was room for an enemy's ship to swing, there was room for another of the English to anchor. The admiral's designs were fully known to the whole squadron, as was his determination to conquer or perish in the attempt. The Goliah and Zealous had the honour to lead inside, and to receive the first fire from the van ships of the enemy; and the remainder of the ships took their respective stations with promptitude and alacrity. The action commenced at sunset, which was at half-past six, with an ardour and vigour which it is impossible to describe. At about seven o'clock, total darkness had come on; but the whole hemisphere was, at intervals, illuminated by the fire of the hostile fleets. The English ships, on its becoming dark, had all hoisted their distinguishing lights, by a signal from the admiral. The van ship of the French, Le Guerrier, was dismasted in less than twelve minutes; and in ten minutes after, the second ship, Le Conquerant, and the third, Le Spartiate, very nearly at the same moment were both dismasted. L'Aquilon and Le Souveraine Peuple, the fourth and fifth ships of the enemy's line were taken possession of by the British at half-past eight in the evening. At ten minutes after nine, a fire was observed on board L'Orient, the French admiral's ship, which soon involved the whole of the afterpart of the ship in flames. This circumstance being communicated to Nelson, who was at that time below, suffering severely from a wound he had received, he came upon deck, where the first consideration that struck his mind was the desire to save as many of the crew as possible, by every practicable exertion that could be used; and with the aid of such of his boats as could be got ready, upward of seventy Frenchmen were saved. The light thrown by the fire of L'Orient upon surrounding objects enabled the British to perceive with more certainty the situation of the two fleets, the colours of both being clearly distinguishable. The cannonading was partially kept up to leeward of the centre till about ten o'clock, when L'Orient blew up with a most tremendous explosion. An awful pause and death-like silence, for about three minutes, ensued, when the wreck of the masts, yards, &c., which had been carried to a vast height, fell down into the water, and on board the surrounding ships. After this awful scene, the firing recommenced with the ships to leeward of the centre till twenty minutes past ten, when there was a total cessation of firing for about ten minutes; after which, it was revived till about three in the morning, when it again ceased. When the victory had been secured in the van, such British ships as were in condition to move, had gone down upon the fresh ships of the enemy. At five in the morning, the rearmost two, Le Guillaume Tell, and Le Généreux, were the only French ships of the line that had their colours flying; and, together with two frigates, they subsequently cut their cables, stood out to sea, and escaped. The whole of the day was occupied in taking possession of and securing the prizes.

Knowing that the wounded in his own ships had been well taken care of, the gallant admiral bent his first attention to those of the enemy. He established a truce with the commandant of Aboukir, and through him made a communication to the commandant of Alexandria, that it was his intention to allow



[Statue of Lord Nelson at St. Paul's.]

all the wounded Frenchmen to be taken ashore to proper hospitals, with their own surgeons to attend them; a proposal which was carried into effect the next day.

The Arabs and Mamelukes, who, during the battle, had lined the shores of the bay, saw with transport that the victory belonged decidedly to the British; and on that and the two following nights the whole coast and country were illuminated in celebration of it. This had a great effect upon the minds of the French prisoners; as they conceived that this illumination was the consequence not entirely of the naval victory, but as some signal advantage obtained by the Arabs and Mamelukes over Bonaparte's army.

By the admiral's desire, communicated to the captains of the fleet, "a general thanksgiving to Almighty God, for having blessed his majesty's arms with victory," evincing his sense of pious gratitude to the Supreme Being, for the signal success which by his Divine favour had crowned his exertions on that memorable day; and it was remarked by some of the French officers, prisoners, that "it was no wonder their conquerors could preserve such order and discipline, when they could impress the minds of their men with such sentiments after a victory so great, and at a moment of such seeming confusion."

The English fleet consisted of thirteen seventy-four-gun ships, one of fifty guns, and a brig. The French had one of one hundred and twenty guns (L'Orient, burnt); three of eighty guns (two of which were taken, and one escaped); nine of seventy-four guns (of which eight were taken, and one escaped); and four frigates, two of which were destroyed. The loss of lives on the side of the French was prodigious; nor was it small on that of the British: sixteen officers and two hundred and two men being returned as killed; and thirty-seven offi-

cers and six hundred and forty men wounded. We conclude by observing, that, as some reward for the valour and discretion displayed by Nelson on this occasion, his own sovereign bestowed on him the honours of the peerage, by the title of Baron Nelson, of Thorpe, in the county of Norfolk, and of the Nile; and his Sicilian majesty created him duke of Bronte, in Naples.

BIOGRAPHY.

SAMUEL ADAMS.—Born, 1722—Died, 1803.

Samuel Adams, whose name is truly dear to all Americans, was born at Boston, September 22, 1722. His ancestors were among the early settlers; his father was for many years, a representative in the Massachusetts house of assembly. In 1740, Mr. Adams was graduated at Harvard, where he proposed the following question for discussion: "Whether it be lawful to resist the supreme magistracy, if the commonwealth cannot otherwise be preserved?" He maintained the affirmative. He thus exhibited, at this early period, that inflexible love of liberty, which was afterward so important to his country. After leaving college, he embarked in mercantile life, but was unfortunate. He now entered into publick life, where he was uniformly distinguished for his opposition to every encroachment on the liberties of the people; and to him also, is ascribed the credit of originating the American Congress. In 1767, Mr. Adams suggested a non-importation agreement between the merchants, which was agreed to, and signed by all of them in the province. On the evening of the 5th of March, 1770, an affray took place between the military quartered at Boston, and some citizens, which resulted in a loss of lives on both sides. On the following morning, a publick meeting was called, and Samuel Adams addressed the Assembly with that impressive eloquence which was so peculiar to himself. The people, on this occasion, chose a committee to wait upon the lieutenant-governour, to require that the troops be immediately withdrawn from the town. The mission, however, proved unsuccessful, and another resolution was immediately adopted, that a new committee be chosen to wait a second time upon Governour Hutchinson, for the purpose of conveying the sense of the meeting in a more peremptory manner. Mr. Adams acted as chairman. They waited on the lieutenant-governour, and communicated this last vote of the town; and, in a speech of some length, Mr. Adams stated the danger of keeping the troops longer in the capital, fully proving the illegality of the act itself; and enumerating the fatal consequences that would ensue, if he refused an immediate compliance with the vote. Lieutenant-Governour Hutchinson, with his usual prevarication, replied, and roundly asserted, that there was no illegality in the measure; and repeated, that the troops were not subject to his authority, but that he would direct the removal of the twenty-ninth regiment. Mr. Adams again rose. The magnitude of the subject, and the manner in which it was treated by Lieutenant-Governour Hutchinson, had now roused the imperious feelings of his patriotick soul. With indignation strongly expressed in his countenance, and in a firm, resolute, and commanding manner, he replied, that "it was well known, that, acting as governour of the province, he was by its charter, the commander-in-chief of his majesty's military and naval forces, and as such, the troops were subject to his orders; and if he had the power to remove one regiment, he had the power to remove both; and nothing short of this would satisfy the people, and it was at his peril, if the vote of the town was not immediately complied with; and if it be longer delayed, he, alone, must be answerable for the fatal consequences that would ensue." This produced a momentary silence. It was now dark, and the people were waiting in anxious suspense for the report of their committee. A conference in whispers followed between Lieutenant-Governour Hutchinson and Colonel Dalrymple. The former, finding himself so closely pressed, and the fallacy and absurdity of his arguments thus glaringly exposed, yielded up his positions, and gave his consent to the removal of both regiments; and Colonel Dalrymple pledged his word of honour, that he would begin his preparations in the morning, and that there should be no unnecessary delay, until the whole of both regiments were removed to the castle.

At a very early period of the controversy between the mother-country and the colonies, Mr. Adams was impressed with the importance of establishing committees of correspondence. In 1766, he made some suggestions on this subject in a letter to a friend in South Carolina; but it was found to be either impracticable or expedient before the year 1772, when it was first adopted by Massachusetts, on a motion of Mr. Adams at a publick town-meeting in Boston. This plan was followed by all the provinces. Mr. Adams's private letters may have advanced this important work. In a letter to Richard Henry Lee, Esq., of Virginia, which, unfortunately, is without a date, is the following remark: "I would propose it for your consideration, whether the establishment of committees of correspondence, among the several towns in every colony, would not tend to promote the general union upon which the security of the whole depends." It will be remembered that the resolutions for the establishment of this institution in Virginia, were passed March 12, 1773, which was more than four months subsequently to the time it had been formed in Boston.

Every method had been tried to induce Mr. Adams to abandon the cause of his country, which he had supported with so much zeal, courage and ability. Threats and caresses had proved equally unavailing. Prior to this time, there is no certain proof that any direct attempt was made upon his virtue and integrity, although a report had been publickly and freely circulated, that it had been unsuccessfully tried by Governour Bernard. Hutchinson knew him too well to make the attempt. But Governour Gage was empowered to try the experiment. He sent him a confidential and verbal message by Colonel Fenton, who waited upon Mr. Adams, and after the customary salutations, he stated the object of his visit. He said, that an adjustment of the disputes which existed between England and the colonies, and a reconciliation, was very desirable, as well as important to the interest of both. That he was authorized from Governour Gage to assure him, that he had been empowered to confer upon him such benefits as would

[Samuel Adams.]

be satisfactory, upon the condition, that he would engage to cease in his opposition to the measures of government. He also observed, that it was the advice of Governour Gage to him, not to incur the further displeasure of his majesty; that his conduct had been such as made him liable to the penalties of an act of Henry VIII., by which, persons could be sent to England for trial of treason, or misprision of treason, at the discretion of a governour of a province, but by changing his political course, he would not only receive great personal advantages, but would thereby make his peace with the king. Mr. Adams listened with apparent interest to this recital. He asked Colonel Fenton, if he would truly deliver his reply as it should be given. After some hesitation he assented. Mr. Adams required his word of honour, which he pledged.

Then rising from his chair, and assuming a determined manner, he replied: "I trust I have long since made MY PEACE WITH THE KING OF KINGS. No personal consideration shall induce me to abandon the righteous cause of my country. Tell Governour Gage, IT IS THE ADVICE OF SAMUEL ADAMS TO HIM, no longer to insult the feelings of an exasperated people."

With a full sense of his own perilous situation, marked out as an object of ministerial vengeance, labouring under severe pecuniary embarrassment, but fearless of personal consequences, he steadily pursued the great object of his soul, the liberty of the people.

The times required bold and inflexible measures. Common distress required common counsel. The aspect was appalling to some of the most decided patriots of the day. The severity of punishment which was inflicted on the people of Boston, by the power of England, produced a melancholy sadness on the friends of American freedom. The Massachusetts house of assembly was then in session at Salem. A committee of that body was chosen to consider and report on the state of the province. Mr. Adams, it is said, observed, that some of the committee were for mild measures, which he judged nowise suited to the present emergency. He conferred with Mr. Warren of Plymouth, upon the necessity of spirited measures, and then said: "Do you keep the committee in play, and I will go and make a caucus by the time the evening arrives, and do you meet me." Mr. Adams secured a meeting of about five principal members of the house, at the time specified, and repeated his endeavours for the second and third nights, when the number amounted to more than thirty. The friends of the administration knew nothing of the matter. The popular leaders took the sense of the members in a private way, and found that they would be able to carry their scheme by a sufficient majority. They had their whole plan completed, prepared their resolutions, and then determined to bring the business forward; but before they commenced, the doorkeeper was ordered to let no person in, nor suffer any one to

depart. The subjects for discussion, were then introduced by Mr. Adams, with his usual eloquence on such great occasions. He was chairman of the committee, and reported the resolutions, for the appointment of delegates to a general congress to be convened at Philadelphia, to consult on the general safety of America. This report was received with surprise and astonishment by the administration party. Such was the apprehension of some, that they were apparently desirous to desert the question. The doorkeeper seemed uneasy at his charge, and wavering with regard to the performance of the duty assigned to him. At this critical juncture, Mr. Adams relieved him, by taking the key and keeping it himself. The resolutions were passed, five delegates, consisting of Samuel Adams, Thomas Cushing, Robert Treat Paine, John Adams, and James Bowdoin, were appointed, the expense was estimated, and funds were voted for the payment. Before the business was finally closed, a member made a plea of indisposition, and was allowed to leave the house. This person went directly to the governour, and informed him of their high-handed proceedings. The governour immediately sent his secretary to dissolve the assembly, who found the door locked. He demanded entrance, but was answered, that his desire could not be complied with, until some important business, then before the house, was concluded. Finding every method to gain admission ineffectual, he read the order on the stairs for an immediate dissolution of the assembly. The order, however, was disregarded by the house. They continued their deliberations, passed all their intended measures, and then obeyed the mandate for dissolution.

After many unavailing efforts, both by threats and promises, to allure this inflexible patriot from his devotion to the sacred cause of independence, governour Gage, at length, on the 12th of June, 1775, issued that memorable proclamation, of which the following is an extract: "In this exigency of complicated calamities, I avail myself of the last effort within the bounds of my duty, to spare the further effusion of blood, to offer, and I do hereby in his majesty's name, offer and promise his most gracious pardon to all persons, who shall forthwith lay down their arms, and return to the duties of peaceable subjects, excepting only from the benefit of such pardon, *Samuel Adams, and John Hancock*, whose offences are of too flagitious a nature to admit of any other consideration than that of condign punishment." This was a diploma, conferring greater honours on the individuals, than any other which was within the power of his Britannick majesty to bestow.

During the revolution, Mr. Adams was constantly labouring in behalf of his country, and always exerting the energies of his mighty mind, fearless of the consequences, to which his devotedness in the cause of liberty might expose him. In 1777, many of the warmest friends of America, began to despair. It was at this critical juncture, after Congress had resolved to adjourn from Philadelphia to Lancaster, that some of the leading members accidentally met in company with each other. A conversation in mutual confidence ensued. Mr. Adams, who was one of the number, was cheerful and undismayed at the aspect of affairs, while the countenances of his friends were strongly marked with the desponding feelings of their hearts. The conversation naturally turned upon the subject which most engaged their feelings. Each took occasion to express his opinions on the situation of the publick cause, and all were gloomy and sad. Mr. Adams listened in silence, till they had finished. He then said: "Gentlemen, your spirits appear to be heavily oppressed with our publick calamities I hope you do not despair of our final success?" It was answered, that "the chance was desperate." Mr. Adams replied: "If this be our language, it is so, indeed. If we wear long faces, they will become fashionable. The people take their tone from ours, and if we despair, can it be expected that they will continue their efforts in what we conceive to be a hopeless cause? Let us banish such feelings, and show a spirit that will keep alive the confidence of the people, rather than damp their courage. Better tidings will soon arrive. Our cause is just and righteous, and we shall never be abandoned by Heaven, while we show ourselves worthy of its aid and protection."

At this time, there were but twenty-eight of the members of Congress present at Philadelphia. Mr. Adams said, that "this was the smallest, but the truest Congress they ever had."

But a few days had elapsed, when the news arrived, of the glorious success at Saratoga, which gave a new complexion to our affairs, and confidence to our hopes.

Soon after this, Lord Howe, the earl of Carlisle, and Mr. Eden, arrived as commissioners to treat for peace, under Lord North's conciliatory proposition. Mr. Adams was one of the committee chosen by Congress, to draught an answer to their letter. In this, it is stated, that "Congress will readily attend to such terms of peace, as may consist with the honour of an independent nation."

In 1779, Samuel Adams was placed by the state convention, on a committee, to prepare and report a form of government for Massachusetts. By this committee, he and John Adams were appointed a sub-committee to furnish a draught of the constitution. The draught produced by them was reported to the convention, and, after some amendments, accepted. The address of the convention to the people was jointly written by them.

In 1781, he was elected a member of the senate of Massachusetts, and was shortly afterward elevated to the presidency of that body.

In 1789, he was elected lieutenant-governour of the state of Massachusetts, and continued to fill that office till 1794, when he was chosen governour of that state. He was annually re-elected till 1797, when, oppressed with years and bodily infirmities, he declined being again a candidate, and retired to private life.

After many years of incessant exertion, employed in the establishment of the independence of America, he died on the 3d October, 1803, in the eighty-second year of his age, in indigent circumstances.

The person of Samuel Adams was of the middle size. His countenance was a true index of his mind, and possessed those lofty and elevated characteristicks, which are always found to accompany true greatness.

He was a steady professor of the Christian re-

ligion, and uniformly attended publick worship. His family devotions were regularly performed, and his morality was never impeached.

In his manners and deportment, he was sincere and unaffected; in conversation, pleasing and instructive; and in his friendships, steadfast and affectionate.

His revolutionary labours were not surpassed by those of any individual. From the commencement of the dispute with Great Britain, he was incessantly employed in publick service; opposing at one time, the doctrine of the supremacy of "parliament in all cases," taking the lead in questions of controverted policy with the royal governours, writing state papers from 1765, to 1774;—in planning and organizing clubs and committees, haranguing in town-meetings, or filling the columns of publick prints with essays adapted to the spirit and temper of the times. In addition to these occupations, he maintained an extensive and laborious correspondence with the friends of American freedom in Great Britain and in the provinces.

No man was more intrepid and dauntless, when encompassed by dangers, or more calm and unmoved amid publick disasters, and adverse fortune. His bold and daring conduct and language subjected him to great personal hazards. Had any fatal event occurred to our country, by which she had fallen in her struggle for liberty, Samuel Adams would have been the first victim of ministerial vengeance. His blood would have been first shed as a sacrifice on the altar of tyranny, for the noble magnanimity and independence, with which he defended the cause of freedom. But such was his firmness, that he probably would have met death with as much composure, as he regarded it with unconcern.

His writings were numerous, and much distinguished for their eloquence and fervour: but unfortunately, the greater part of them have been lost, or so distributed as to render their collection impossible.

He was the author of a letter to the earl of Hillsborough;—of many political essays directed against the administration of Governour Shirley;—of a letter in answer to Thomas Paine, in defence of Christianity, and of an oration published in the year 1776.

Four letters of his correspondence on government are extant, and were published in a pamphlet form in 1800.

The venerable John Adams relates, that on one occasion, he went into Samuel Adams's room, and found him alone, and busily engaged in destroying manuscript documents. He inquired why he did it; and the reply was, that "no papers should be found in his possession, that might endanger the persons of others."

Mr. Adams's eloquence was of a peculiar character. His language was pure, concise, and impressive. He was more logical than figurative. His arguments were addressed rather to the understanding, than to the feelings; yet he always engaged the deepest attention of his audience. On ordinary occasions, there was nothing remarkable in his speeches; but on great questions, when his own feelings were interested, he would combine every thing great in oratory. In the language of an elegant writer, the great qualities of his mind were fully displayed, in proportion as the field for their exertion was extended; and the energy of his language was not inferiour to the depth of his mind. It was an eloquence admirably adapted to the age in which he flourished, and exactly calculated to attain the object of his pursuit. It may well be described in the language of the poet, "thoughts which breathe, and words which burn." An eloquence, not consisting of theatrical gesture, or the pomp of words; but that which was a true picture of a heart glowing with the sublime enthusiasm and ardour of patriotism; an eloquence, to which his fellow citizens listened with applause and rapture; and little inferiour to the best models of antiquity, for simplicity, majesty, and persuasion. Delaplaine.

[From the Western Messenger.]

EARLY TIMES IN TENNESSEE.

When we cast our eyes over the great valley of the West, watered by the Mississippi and Ohio and their tributary streams, our minds are carried back to that period when it was one vast wilderness, inhabited by a fierce and savage race, to whom the arts of civilization were unknown, and whose principal occupations were war and hunting. We recall the deeds of our "pioneer fathers," and to our imagination are presented in vivid colours the difficulties and dangers they encountered before they effected a permanent foothold, and enjoyed unmolested the comforts of home. By their courage and perseverance, they surmounted every obstacle, and the fruits of their enterprise are now displayed in the population and the increasing wealth of the country. Its vast resources are in a state of rapid development; industry and enterprise, aided by enlightened legislation, are calling forth its energies, and the prophetick declaration that "westward the star of empire takes its way," is advancing to its fulfilment. The tide of emigration is forcing itself from the worn-out lands of the east, and that region which, a few years ago, was denominated the "far West," and was regarded as the outskirts of civilization, is now the residence of an active, industrious, enterprising and intelligent population. Cities have risen up as if by magick; agriculture, manufactures and commerce flourish; literature, science and the arts are extending their healthful and invigorating influence throughout the country, and the broad banner of civil and religious freedom is every where displayed, inviting the poor and oppressed to take shelter under its ample folds. Bright and glorious are the prospects of the valley of the West! Onward, still onward must be its triumphant march! Blessed with a soil unsurpassed in fertility and a salubrious climate, and possessing, by means of its great rivers, immense advantages for trade and commerce, it must, ere the lapse of many years, rival the older states beyond the mountains, in every thing that can render a country prosperous, and a people happy. This is not a dream of an enthusiast—the wild imagining of a citizen of the West. Nature has proclaimed its destiny; she has stamped it in characters too plain to be misunderstood. Narrow-minded legislation, and a niggard policy, may for a while retard, but nothing can prevent its ultimate rise to that greatness which, from the beginning, nature destined it to attain.

At an early period of our national existence, the bountiful soil and mild climate of Tennessee attracted the notice of adventurers. In 1771, during our colonial dependance, several settlements were made north of Holston river, in that part of Tennessee which now includes the counties of Sullivan and Hawkins; some settlements were also made about the same time south of the same river. The pioneers who thus adventured were principally from North Carolina. Although the country abovementioned properly belonged to North Carolina, the settlers north of the Holston agreed among themselves to adhere to Virginia, and be governed by its laws, as well for protection against the Indians as against the numerous bands of horse-thieves and other marauders, who infested the borders. Those who settled south of the Holston, considered North Carolina as the parent state or colony, but they were governed by laws of their own making. Although they acknowledged separate jurisdictions, they were united by a common interest and for mutual defence, and in the prosecution of their bold enterprise of effecting permanent settlements in what might be called an enemy's country, they encountered hardships and perils of no common sort, and overcome difficulties which appeared at first almost insurmountable.

The settlements on both sides of the Holston gradually increased by the accession of new emigrants, notwithstanding they were exposed to the attacks and inroads of their savage neighbours; but in 1774, emigration received a check, in consequence of the combined efforts of the Shawnee and other hostile tribes, who penetrated as far as Sullivan county, committing numerous depredations upon the property of such of the settlers as were unable to oppose effectual resistance, and sacrificing the lives of those who were unable to escape from their murderous assaults.

In this state of things the government of Virginia, in July, 1774, ordered an expedition against the hostile tribes, the command of which was given to Col. Andrew Lewis. To co-operate in this expedition, upon the success of which, in a great degree depended the safety of the frontier settlements, Capt. Evan Shelby raised a company of fifty men, in that part of Tennessee, now called Sullivan and Carter counties. They set out about the seventeenth of August, and in the beginning of September, formed a junction with Col. Christian, on New river. Animated by that bold and daring spirit, which subsequently, in more brilliant scenes, animated their descendants, they bore a part in the celebrated battle of the Great Kenhawa, on the tenth of October, where the Indians were defeated with considerable loss. In this battle, the late Gen. James Robertson and Col. Valentine Sevier (then both non-commissioned officers) were distinguished for their vigilance, activity, and bravery—qualities for which they were more particularly distinguished in subsequent contests with the Indians in Tennessee. This battle was fought at the time the first Congress sat in Philadelphia, and its result had the effect of suppressing the depredations of the Indians until July, 1776, when the colonists, by their representatives, declared themselves independent, and pledged "their lives, fortunes, and sacred honour," to maintain their independence. The war of the revolution had now assumed such an aspect, that the British government did not hesitate, through their emissaries, to stir up the Indians to renewed hostilities upon the frontiers; acting upon the maxim that it had the right to employ "all the means which God and nature had put into its hands."

Influenced by a British agent named Cameron, the Cherokees, then a powerful tribe, prepared for war, but their intention was happily frustrated. About the first of July, three men, namely, Isaac Thomas, William Fawley, and John Blankenship, who had resided several years among the Cherokees, left the nation, and making their way to the white settlements, communicated the information that twelve hundred warriors were armed and equipped, and ready to march against the frontiers. The departure of these men caused the Indians to postpone their march for two weeks, which gave time to the whites to prepare for their reception by the construction of forts, and other means of defence, and at the same time, two companies from Washington county, Virginia, under the command of Captains James Thompson and William Cocke, and one company from what is now called Sullivan county, Tennessee, under Captain James Shelby, amounting together to one hundred and seventy-six men, marched towards Long island, in the Holston, for the purpose of watching the motions of the enemy. When they were arrived within a mile of the island, they met the Indians, about eight hundred in number, advancing under the command of *Dragging Canoe*, a daring and experienced chief. The Indians relying upon their superiority of numbers, did not observe their usual caution, but flushed with the hopes of anticipated victory, rushed upon their antagonists in great disorder. The result proved that the "race is not always to the swift, or the battle to the strong." Both parties engaged hand to hand, but a few minutes decided the battle in favour of the whites. Thirty-six of the Indians were killed on the spot, the rest fled in great confusion, seeking refuge among the hills and mountains. The other division of the Indian force, consisting of four hundred warriours, attacked the fort at the Sycamore shoals, but were gallantly repulsed by Robertson and Sevier.

Thus ended the invasion of the Cherokees, to the great disappointment of Cameron, who had no doubt of its successful issue, and that the whites would be compelled to abandon the country. Notwithstanding their defeat in these two instances, the Indians, led on by false hopes, and urged by British agents, continued to harass the frontiers, and in consequence of these aggressions, the governments of Virginia and North Carolina, in the fall of 1776, raised a force of between two and three thousand men for the purpose of attacking the Cherokee towns. This army was placed under the command of Col. Christian, who advanced into the Indian country. The Cherokees, who had not recovered from their defeat at Long Island and the Sycamore shoals, could not be brought to a general action, and they at length sued for peace. The propositions to bury the tomahawk were listened to by Col. Christian, and it was agreed that a treaty should be held the ensuing spring. Owing, however to the opposition of *Dragging Canoe* "whose voice was still for war," the treaty was postponed until the ensuing summer. This restless

and warlike chief, removed with three or four hundred warriours, who adhered to his fortunes, to the Chickamauga, a branch of the Tennessee.

In the latter part of June, 1777, the Cherokees assembled to the number of twelve or thirteen hundred, at Great island, the place appointed for holding the treaty. The governments of North Carolina and Virginia at the same time ordered between seven and eight hundred militia to assemble at the same place, in order, by a display of force, to overawe the Indians, and afford protection to the commissioners, who were Cols. Avery and Lanier, and Major Winston, on the part of North Carolina, and Cols. Christian, Preston, and Evan Shelby on the part of Virginia. A treaty of peace was finally concluded in August, but such was the condition of the country in consequence of the revolutionary struggle, and such the influence of British emissaries, that the frontiers enjoyed the blessings of peace but a short time.

Whilst those events were passing, *Dragging Canoe*, whose enmity to the whites never slumbered, was not inactive, and during the year 1778, his party having considerably increased in numbers, he frequently harassed the frontiers by his predatory incursions, and many of the whites fell victims to the tomahawk and scalping-knife. In the beginning of the year 1779, this warlike chief could number amongst his followers upward of one thousand warriours from almost every tribe on the Ohio. Their depredations extended from Georgia to Pennsylvania, and consequently upon the whole of this extensive frontier, life and property were insecure. The governments of North Carolina and Virginia determined to make another vigorous effort—vigorous as far as their then circumstances and means would permit. They accordingly raised a force of one thousand men, under the command of Col. Evan Shelby, and a regiment of twelve months' men under the command of Col. John Montgomery. This force was ordered to proceed against the Indians. It is worthy of remark, that nearly the whole of the supplies necessary for the campaign, were purchased upon the individual responsibility, and through the personal exertions of Isaac Shelby, late governour of Kentucky, whose active patriotism was displayed during the trying scenes of the revolution, and in the border warfare of that period, as well as during the late war with Great Britain, when with the gallant Harrison, he triumphed upon the Thames. The army assembled at the mouth of Big Creek, in Tennessee, about four miles from where the town of Rogersville now stands, about the tenth of April. Having made all their preparations, they descended the river in canoes and pirogues, with so much caution and celerity, that they completely surprised the enemy, who fled in every direction without giving battle. They were, however, hotly pursued, and about forty were slain. Their towns were burned, their corn destroyed, and their cattle driven off. This victory dispersed the Indian force, and for some time gave peace to Tennessee, and opened a communication with the settlements in Kentucky. Although for some years after, the war was frequently renewed, the tide of emigration continued to swell; the permanency of the settlements was secured, and in the year 1776, Tennessee was admitted into the Union as a sovereign and independent state.

Since that period, she has continued to advance in prosperity, and now occupies a distinguished position among her sister states. That she may continue to prosper, is the sincere wish of one whose recollections still linger round the scenes that were once familiar and are still dear to him. W. T.

NOTE. The facts stated in the foregoing article are taken from the papers of one who bore a distinguished part in the proceedings of the times, and who filled the highest office in the state of Kentucky, the late Governour Shelby.

NATURAL HISTORY.

[Jacanas walking or Water-plants.]

JACANA—*P. Parra.*

A VERY peculiar, and by no means uninteresting genus of birds, belonging to Cuvier's *Macrodactylick*, or long-toed family of *Echassiers*, or stilt birds; and

forming the most typical or characteristick genus of the family. In their habits, they are somewhat allied to the rails and water-hens of our temperate climates; but they are all natives of warm countries, and possess the power of running lightly upon aquatick plants and herbage, in far greater perfection than any of our birds.

The birds of this genus are very strikingly distinguished from all the other walking birds, by the great development of their feet, which are in all the species, and in every part of the structure, very large and strong in proportion to the size of the bird.

The most remarkable part, however, is the great development of the claws. These toes are four in number, three to the front, and one to the rear, all articulated at the same height on the tarsus, and perfectly free, or without membranes, to their very basis. They are furnished with long claws, very little bent, and tapering to points, which are exceedingly sharp; and this peculiarity of the claw is more remarkable on the hind toes, than on any of the rest. From this produced form and extreme sharpness of the claws, the French have given these birds the fanciful name of surgeons, though it does not appear that they exercise those keen weapons in any kind of plebotomy, or in doing violence to any creature whatever. One of the most remarkable appendages of the wing is a large horny spur, slightly curved, and very sharp-pointed, which is placed on the turn of the wing, and which might be used as a rather formidable weapon; but whether it ever is so used, has not been determined. This formidable amature of the feet and the wings has, however, led some to conclude that these birds are of a pugnacious disposition: but the very reverse seems to be the case; for those who have had the best opportunities of observing them in a state of nature, represent them as being very peaceable birds, and very much attached to each other, especially the pairs, which show a very strong reciprocal affection. The birds are at all times difficult to approach, because of the lightness and agility with which they run upon the floating leaves, and also through the tall aquatick grasses, and the ease with which, when necessary, they can throw themselves so far into the air as to be able to get on the wing. The great elasticity of their toes, and the rapid contractions of these by the bendings of the upper joints of the limbs, are the means by which this is effected. The keen points of the claws, too, enable them to take hold of a stem or a leaf, so as to form a point of support with very little pressure. The spur on the wing is not of such apparent utility, but it may also assist the bird in holding on upon the aquatick herbage, until it has acquired a footing. Any one who has observed with what swiftness, neatness, and lightness, the common water-hen runs along a brook, when there is only here and there a struggling leaf or stem to afford support, can readily imagine how much more fleetly these birds, whose feet are so much better organized for such an office, can only make their way over the waters; and consequently, how difficult it must be to obtain a sight of them, more especially as the places which they inhabit, are not the most tempting for human visiters.

When one is occupied, the other is always wa ing, and instantly gives the alarm-cry when danger is near; or if the alarm-call is given, not from the actual appearance of danger, but from the apprehension of it, the one is called to respond that all is safe, by a sort of subdued and murmuring cry, which has something very pleasant in it. During the day, these birds remain very silent, unless when they are disturbed by unwelcome visiters; but during the night, when they are in motion, their cries are heard at a great distance, and the sound is by no means agreeable. Their nests are formed in the thick tufts of marsh plants, in a very similar manner to those of the long-toed birds of Europe. They are built of rushes and other coarse aquatick plants, of which a great quantity is collected, and placed sufficiently high for being above any ordinary inundation. The hatch consists of four or five eggs, of a greenish colour, and mottled with small spots of dark brown.

The birds of this genus were once supposed to be natives of America only; but they are found in the marshy parts of all tropical countries. In Central Africa, in India, in the Oriental isles, as well as all the richer parts of tropical America. They are birds which are peculiarly characteristick of the places which they inhabit; and as they are rarely found in situations which are but occasionally covered with water, and which form the proper pastures of the cranes and storks, they are not much given to migration. Within their localities, their flight, when they do take the wing, is rapid; but they do not rise to great heights, or fly over long distances.

Their proper function in nature appears to be that of cleaning the leaves of aquatick plants, of which there are vast numbers in tropical countries, from insects and other small animals, which are not available either to flying or swimming birds. They take up the waters as to pasture, when the fly-catchers, bee-eaters, and other birds, which can use the wing rapidly, there leave off; and they quit them at that particular stage where they become the pastures of ducks and divers, and other birds which seek their food at the bottom, or submerge in the free waters.

ANT-EATER.

The *little ant-eater, or silken sloth*, (*M. Didactyla* —two-toed,) is improperly called an ant-eater. This species is about the size of the common squirrel, has the snout less produced than the last species, and the feet not so well adapted for walking. The fore ones have, however, powerful claws, (two on each foot,) bearing some resemblance to those of the sloth; and the tail is very prehensile.

The dimensions of this species are small, compared with those even of the tamandua. Its length is only about thirteen inches and a half, of which the head occupies less than two inches, and the tail above seven. The tail is very thick and strong at its insertion, and tapers gradually to the tip. The colours are either bright yellow, with the back brown, or silver gray, with the back darker. The hair is soft and silky, but in some parts curled or matted, at the points. The tail is slightly annulated with the prevailing colours of the body, except a portion of the under side near the point, which is naked, as is usual in that organ, when prehensile.

[Silken Sloth.]

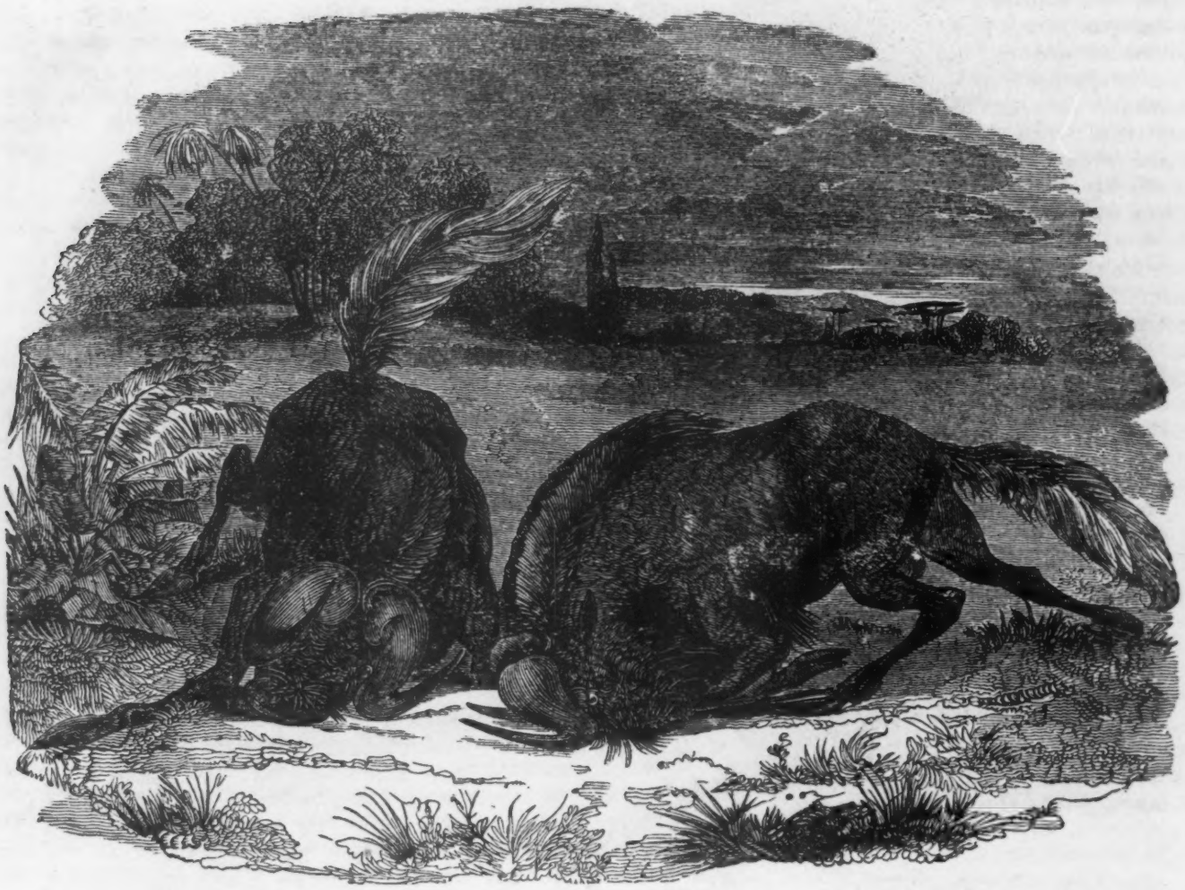
The hind feet are squat and flat, with the phalanges of the toes united and covered with hair. They have four small claws on each. The fore-feet (which the animal can use like hands, resting on the hind feet, holding on with the tail if necessary) have only two claws on each, an outer and very large one, and an inner and smaller, which lies in the curve of the former.

These animals live in the trees, and feed chiefly upon wasps and other insects in the larva state, which they are very dexterous in capturing with their nippers. It is probable that they also use the tongue in feeding, though certainly not so habitually as the ant-eater, properly so called. As is the case with many of the other inhabitants of the dense forests in the humid parts of South America, they repose during the day, at least in the dry season, when the larvæ are unable to bear the heat of the sun. They partially roll themselves in balls, remaining anchored by the prehensile tail, and sometimes suspended by it. The females of this species are described as having four mammæ, two on the breast, and two on the belly, and yet they are said to have only one young one at a birth. The details of their economy and habits are not, however, very well known.

THE GNU.—*Antelope Gnu.*

The gnu is found in small herds, on the vast plains of Southern Africa. where. In the midst of a world of antelopes, he spends his time in grazing the long grass and succulent vegetation of those regions. He is considered by zoologists to be a species of *antelope*, to which he bears an unquestionable relation, in the structure of his horns, the general form of his body, &c., but he nevertheless possesses, as we shall presently see, so many distinguishing characteristicks of his own, that he deserves to be separated from the immense family with which he is at present associated, and made to stand as the representative of a new *genus*. The gnus, of which there are three species: 1, the one under consideration; 2, the *kokoon*, (*A. taurina*, Burchell,) of a larger size than the gnu, but similar to it in form, and although inhabiting the same localities, never associating with it; and 3, the *brindled gnu*, (*A. goron*, Hamilton Smith,) a very distinct species from either of the preceding, but known only by a stuffed specimen in the museum of the London missionary society, which was brought from the countries near the source of the Orange river.

Gnus are distinguished chiefly by their horns, which are possessed by both sexes; and also by the singular form of the muzzle, which differs from that of all the antelopes, and closely resembles the snout, nostrils, and lips of an ox. The horns arise by two broad bases, which spread over, and cover the fore head in precisely the same way as in the musk-ox; this solid helmet is then drawn out on either side into two strong smooth black horns, which bending downward and forward, become quite round, and



[Gnus fighting.]

then turning to a height equal to their descent, terminate in a blunt hard point.

The nostrils are large, and covered by a fold of the skin, which being under the command of the animal, answers all the purposes of a valve, to defend the olfactory organs against the ingress of those particles of dust, which the slightest atmospherick disturbance wafts in clouds from the shifting surface of the desert. The females have two mammæ, in which they differ from many of the antelopes, which have four. The neck is decorated with a fine flowing mane, and the throat with a stiff-haired beard. A small dewlap hangs from the breast; and the tail is loose and hairy, as in the horse.

In the species which we have figured, the common gnu, the characters which we have thus described, as belonging equally to himself and his congeners, are modified, and the species distinguished, by the following peculiarities: The fur is soft, and of a rich brown; the tail reaches to the hoof joint, brown above, and white beneath; the neck with a plentiful black mane; and the forehead, with a line of hair up its centre; the feet and legs neatly formed, and of great elasticity. The hind quarter for lightness, strength, and beauty of outline, is unequalled in the animal kingdom. They are about the size of a full grown ass, and said, by travellers, so closely to resemble a small horse, both in pace and form, that when seen at a distance, flying over the plains of South Africa, they might be readily mistaken for a troop of the wild zebras and quaggas, which inhabit the same localities, if their dark and uniform colour, and the circumstance of their always running in lines, one behind the other, did not distinguish them.

Mr. Steedman, the South African traveller, says that they generally retreat when pursued; but, if wounded, they become very furious, as he had frequent opportunities of witnessing; and on one occasion, was himself attacked, while crossing the plains, by an old male gnu, which had been driven out of the herd. The animal approached with great violence;—on being fired at, he stumbled; but recovering himself, came on with redoubled fury, snorting, and tearing up the ground; and had it not been for the timely assistance of a servant, who was on the spot, it might have proved an unpleasant adventure.

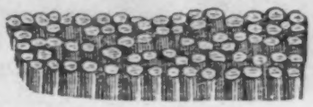
The late Baron Cuvier has shown that the gnu was the animal of which the ancients related so many fables, under the name of Kathoblepsa, and which, from the time of Ælian, was not known in Europe, till about the end of the last century.

PORCUPINE MEN.

In the year 1731, Mr. John Machin introduced to the notice of the Royal society of London a boy, about fourteen years of age, the son of a country labourer residing in the neighbourhood of Euston hall, in the county of Suffolk, exhibiting those singular characters peculiar to that rare variety of the human race commonly called porcupine men.

Instead of a skin, his body was enveloped in a dusky-coloured case, resembling a rugged bark or

hide, with bristles in some places. This case fitted every part of his body excepting his face, the soles of the feet, and the palms of the hands. His body thus presented the appearance of being partially clothed. It would have been difficult to mention any other integument which resembled it exactly. Some persons considered it to be like one large wart, or number of warts uniting and spreading over the whole body. Others thought it like the hide of the elephant, or the skin around the legs of the rhinoceros; while others again compared it to seal-skin, or to the bark of a tree. The bristly parts, which were chiefly near the abdomen, and on the sides of the body, made a rustling noise when he moved, like the quills of a hedgehog, and seemed as if shorn within an inch of the skin. The following is a representation of a portion of this extraordinary epidermis, which was probably nothing more than a prolongation of the papillæ of the skin, grown to the size of common packthread. These stood as close together as the bristles in a brush—and seemed, like them, to be all shorn off of the same length, being about half an inch above the skin, as in fig. 1. When



magnified, these stumps or bristles appeared of various forms; some were concave, others were flat on the top, and others again were of a conical form, as in fig. 2.

This skin was callous and insensible to external injury in every part. But one very remarkable circumstance attending it was, that in every year about autumn it usually grew to the thickness of three quarters of an inch, and was then thrust off and shed by a new skin, which came up beneath the former. This rugged covering gave the boy no pain or uneasiness, except after hard labour it was apt to cleave and start, so as to cause slight bleeding. His face was well featured and of a good complexion, if not rather too ruddy, while the palms of his hands were not harder or in a worse condition than is usual to workmen or labourers. His size was proportioned to his age—his body and limbs were straight, and otherwise well shaped—and there was nothing unusual either in his habits or disposition.

His father reported that, at birth, the skin of this boy resembled that of other children, and continued so for seven or eight weeks; when, without any apparent cause, and without his being even sick, it began to turn yellow, as if he had the jaundice: that it afterward changed gradually into black, then thickened and finally appeared as we have already described.

When this boy grew up, he gained a subsistence by exhibiting himself publickly as "the porcupine man," along with a son of his, also in the same condition. His name was Edward Lambert, and at the age of forty years he was thus described by Mr. Henry Baker:—"He is a good-looking, well-shaped man, of a florid countenance—and, when his body and hands are covered, seems nothing different from other people; but, except his head and face, the palms of his hands, and the soles of his feet, his skin was covered in the same manner as in the year 1731. This covering seems to me most nearly to resemble an innumerable company of warts, of a dark-brown colour, and a cylindrical figure, rising to a like height, and growing as close as possible to one another, but so stiff and elastick, that when the hand is drawn over them they make a rustling noise.

"When I saw this man, in the month of September last, they were shedding off in several places, and young ones of a paler brown succeeding in their room, which he told me happens annually in some of the autumn or winter months; and then he commonly is let blood, to prevent some little sickness which he else is subject to while they are falling off. At other times he is incommoded by them no otherwise than by fretting out his linen, which, he says, they do very quickly; and when they come to their full growth, being then in many places near an inch in height, the pressure of his clothes is troublesome.

"He has had the smallpox, and been twice salivated, in hopes of getting rid of this disagreeable covering; during which disorders the warting came off, and his skin appeared white and smooth, like that of other people; but on his recovery, soon became as it was before. His health at other times has been very good during his whole life.

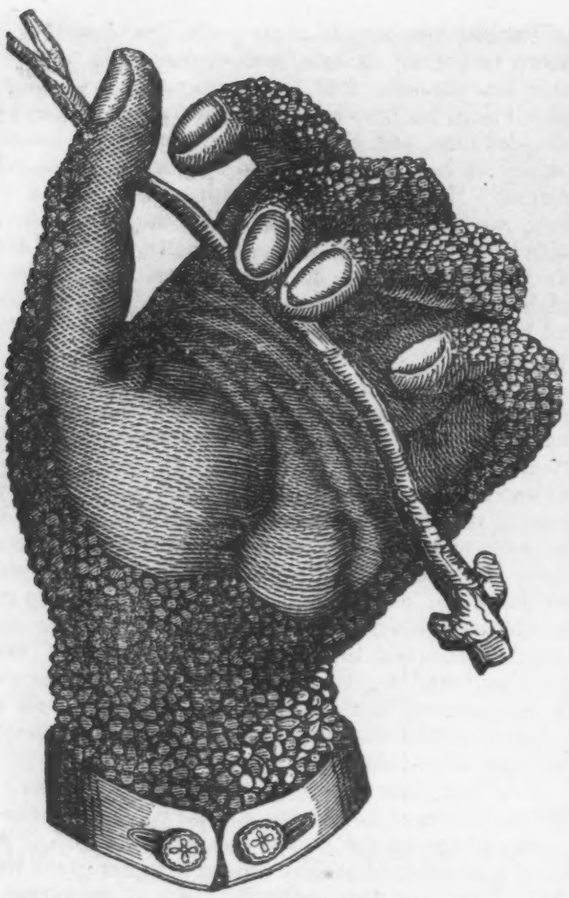
"But the most extraordinary circumstance of this man's story, and indeed the only reason of my giving you this trouble, is, that he has had six children all with the same rugged covering as himself; the first appearance whereof in them, as well as in him, came on in about nine weeks after his birth. Only one of them is now living, a very pretty boy, and who is exactly in the same condition, which it is needless to repeat. He also has had the smallpox, and during that time was free from this disorder."

The wood-cut, overleaf, exhibits the hand of this boy in such a manner as to show the palm free from these excrescences, and its other parts covered with them.

"It appears, therefore, past all doubt," continues Mr. Baker, "that a race of people may be propagated by this man, having such rugged coats or coverings as himself; and, if this should ever happen, and the accidental original be forgotten, it is not improbable they might be deemed a different species of mankind; a consideration which would almost lead one to imagine, that if mankind were all produced from one and the same stock, the black skin of the negroes, and many other differences of the like kind, might possibly have been originally owing to some such accidental cause."

This young man afterward married, and had two sons in all respects resembling himself, as well as their grandfather. They went over to Germany in 1801, where they exhibited themselves. Dr. Blumenbach, who saw them, says that the palms of their hands and soles of their feet were of the usual appearance, but seemed to him rather red.

Dr. Autenrieth (who endeavours to trace an analogy between these men and negroes, and even suspects them to be of African origin) rather thinks



that the soles of the feet, of both brothers, are plain and flat, as we see them in children and adult negroes. The skin of the remaining parts of the body was covered with corneous excrescences, or pegs of greater or less size, differing in their horny consistence. The longest, strongest, and hardest, were on the forearms and thighs; the thinnest were on some parts of the abdomen. Those of the younger brother were in general smaller, and in several places the skin was soft, and comparable to black coarse morocco leather. The largest were from four to five lines long, and of an irregular prismatick form, with blunt edges; most of them seemed as if pressed flat. The thickest of them were about three lines in diameter at their extremities, either split or diverging like a fork. As to the cylindrical figure ascribed to them by Baker, (who, besides, supposed them to be hollow,) Dr. Blumenbach scarcely observed one of that form.

Dr. Telesius remarked that these men look quite different in autumn from what they do at other seasons, because they then lose their outer skin, or oldest crust, and appeared spotted.

On examining the fragments, he found that those which he had broken off were softer to the touch than those which had fallen off spontaneously; probably on account of their being under the immediate influence of the exhaling vessels and the sebaceous glands. Where the excrescences were longest and thickest they appeared to Dr. Blumenbach to be like those of the elephant, under the forehead and above the proboscis; their colour, in general, appeared of a chestnut or coffee-brown. This, however, was the case at their surface only; for the inferiour parts, especially of the largest ones, were of a yellowish gray. Some of the hair of the skin appeared as if grown into the horny substance of the excrescences. The skin on the top of the head before, especially in the eldest, formed a kind of broad callosity, somewhat like the top of the camel. As for the perspiration of these men, it had nothing uncommon connected with it, nor any perceptible odour.

Of cases really analogous to that of the porcupine men, Dr. Blumenbach mentions two others, which came under his notice; the one was of the boy of Bifeglia, of whom Stalp Vanderwiel has given a description and figure in his observations; the other, a female child at Vienna, described by Professor Brambilla, in his Memoirs of the Jos. Med. Chirurg. Academy. In both the face was free from any excrescences, but the palms of the hands and soles of the feet were most defaced by them.

INDIAN TRADITION OF MONUMENT MOUNTAIN.

BY L. H. HALE.

In the beauty of their scenery, and picturesque meanderings, the rivers of New England are scarcely surpassed by any in the known world.—Peculiarly so, and the loveliest of the lovely, is the Housatonick. This river rises in the northwest part of Massachusetts. At times struggling to find an outlet from between her everlasting mountains, and then rolling its sluggish waters through her rich alluvial valleys, it presents to the eye of the traveller a scene of peculiar beauty and grandeur.

At a short distance east of this river may be seen the towering height of Monument mountain. It rises peerless from the plain, and its high, precipitous sides present a dread and gloomy aspect to the eye of the beholder. The cliffs upon the eastern side are almost perpendicular. As the beholder gazes upward from the foot of this immense pile of rocks, beholding cliff piled upon cliff, he becomes bewildered from the immensity of their height. From the summit of these rocks, there is presented to the eye a scene of unmingled beauty. Here, on every side, are beheld waving groves, cultivated fields, verdant meadows, meandering streams, and the Housatonick a beauteous queen among them, each adding to the enchantment of the scene. After the beholder is satisfied with viewing each lovely object spread around him, then let him confine his vision to the prospect immediately below. He there beholds immense masses of rocks, scattered at the base, appearing like fragments in the distance; and desiring more fully to view the awful grandeur of the place, and approaching still nearer the edge of the almost immeasurable precipice, his head grows dizzy, and he finds himself incapable of proceeding to the verge.

Connected with these scenes is a thrilling and romantick Indian tradition, or traditions; for there are many concerning this remarkable spot, although all evidently have reference to the same circumstance. The following is the most current as well as most plausible:—

In the vicinity of this mountain, resided the Stockbridge Indians, a powerful and warlike tribe, claiming the fertile banks of the Housatonick and adjacent country, as their fishing and hunting ground. As the Indian maids met on the banks of this noble

river, to enjoy their rural sports, one might easily be distinguished from the rest by her lovely and commanding appearance. Untutored in the art of coquetry, the graces of Oucannawa were those which nature alone had given her. Unaccustomed to restraining the human body, and thus modelling nature's fairest works, her form was of the utmost symmetry, and her movements so free and light, as would excite envy in the breast of a modern belle.

Ofttimes, as the Indian maids were engaged in their innocent sports, would they be joined by the young men of the tribe, who, throwing aside their bows and arrows, would cease awhile from the sports of the chase, to enjoy pleasure of a more refined (if I may be allowed the term) and enlivening kind.

While Oucannawa was engaged in the merry sports of her tribe, she was frequently observed by young Salouch, a warriour of the tribe, who became passionately enamoured with her. Of his character, tradition says nought, save what is related in the sequel of the story. Salouch made his advances, and used all the cunning which savage life had given him, to woo the maid and make her his own. His advances were slighted, and he was given to understand that his endeavours to win her were in vain. Her affections were already won by another, and her faith plighted to the object of her love. But Salouch was not easily to be baffled. He was determined to make the young, the noble Oucannawa his own, if it could be done by savage art; if unsuccessful he was resolved she never should become another's.

One lovely day, as the sun attained its meridian height, the Indian maid was seen pensively following the circuitous path which leads to the summit of Monument mountain. From the top of this mountain there was then, as now, a grand and imposing prospect of the surrounding country. Here Oucannawa, herself a child of nature, would retreat to behold nature's wonders. Here she loved to retire from the wild sports of her youth, and gaze upon nature's wilder scenes. Having arrived at the summit of the mountain, with the broad expanse of heaven above, she now stood in nature's simplicity near the verge of this tremendous precipice, viewing the romantick scene before her. Her heart was filled with conscious pride on viewing the numerous wigwams of her kindred scattered here and there as far as the eye could reach. Behind her the Housatonick wound its serpentine course through the valley. Around stood the almost impenetrable forests of her native tribe, interspersed with the rude villages of her countrymen. On one side was to be seen the smoke curling from her father's wigwam—on the other, an opening in the distance told her the place where many of her kindred assembled around the council fire of the nation.

While the Indian maid, her bosom swelling with delight, was contemplating this enchanting scene, a rustling in the thicket from behind made her sensible she was not alone in this wild retreat. She turned, and saw one of the young men of the tribe advancing towards her. It was Salouch. He now recommenced his suit. He sued, but he sued in vain; he entreated, but she was still inflexible. Her heart was another's, and her hand was pledged to him alone.

Finding his supplications vain, he assumed a more menacing attitude, and changed his entreaties into threats. But as the fiend became more manifest in his bosom, Oucannawa assumed a more decided tone, and, choosing death rather than inconstancy to her lover, gave him a firm and decided refusal. The savage then, with a feeling akin to hell, resolved that the object of his unhallowed love should never render happy his hated rival. Like an infuriated demon, he now seized the hapless maid, and before she was aware of his design, hurled her headlong from the height of this awful precipice.

One moment suspended between heaven and earth, the next her mangled corpse lay bleeding upon the crags below. Her pure spirit had fled. Scarcely the form of the bright and lovely Oucannawa could be traced in the mangled body, as it lay among the rough, broken rocks. A faint smile still lingered upon her lips, for she felt, as she sped from these dizzy heights, that she left her lover no room to doubt her constancy—and that the Great Spirit would not spurn her from the bright fields and green meadows beyond the hills. As the maids of the tribe gathered together around the mangled corpse of Oucannawa, with moistened eyes, they sung a requiem to the departed spirit, and buried her near the spot where she fell.

Tradition tells not what became of the murderer; but the victim of his vengeance, the constant Oucannawa, sleeps at the foot of these mighty cliffs. A rude monument of stones, raised over her grave by her countrymen, still marks the place of her repose, and has given its name to the mountain. And it is said that even till the present day, as a lone wanderer of the tribe passes by, he stops to shed a tear, and add one stone to the monument of the Indian maid.

Saturday Courier.

CARGUEROES, OR MAN-CARRIERS OF QUINDIU.

The mountain of Quindiu is considered as the most difficult passage in the Cordilleras of the Andes. It is a thick uninhabited forest, which, in the finest season, cannot be traversed in less than ten or twelve days. Not even a hut is to be seen, nor can any means of subsistence be found.

Travellers, at all times of the year, furnish themselves with a month's provision, since it often happens, that by the melting of the snows, and the sudden swell of the torrents, they find themselves so circumstanced, that they can descend neither on the side of Carthago, nor on that of Ibague. The highest point of the road, the Garito del Paramo, is three thousand five hundred and five metres (eleven thousand, and five hundred feet) above the level of the sea. As the foot of the mountain, towards the banks of the Cauca, is only nine hundred and sixty metres, (three thousand, one hundred and fifty feet high,) the climate there is in general mild and temperate. The pathway, which forms the passage of the Cordilleras, is only three or four decimetres in breadth, (from a foot, to a foot and a half;) and has the appearance, in several places, of a gallery dug, and left open to the sky. In this part of the Andes, as almost in every other, the rock is covered with a thick stratum of clay. The streamlets, which flow

down the mountains, have hollowed out gullies, six or seven metres deep, (from twenty, to twenty-three feet.) Along these crevices, which are full of mud, the traveller is forced to grope his passage, the darkness of which is increased by the thick vegetation that covers the opening above. The oxen, which are the beasts of burden commonly made use of in this country, can scarcely force their way through these galleries, some of which are two thousand metres (two thousand, two hundred yards) in length; and if, perchance, the traveller meets them in one of these passages, he finds no means of avoiding them but by turning back, and climbing the earthen wall which borders the crevice, and keeping himself suspended, by laying hold of the roots which penetrate to this depth from the surface of the ground.

We traversed the mountain of Quiñdiu, in the month of October, 1801, on foot, followed by twelve oxen, which carried our collections and instruments, midst a deluge of rain, to which we were exposed, during the last three or four days, in our descent on the western side of the Cordilleras. The road passes through a country full of bogs, and covered with bamboos. Our shoes were so torn by the prickles, which shoot out from the roots of these gigantick gramina, that we were forced, like all other travellers who dislike being carried on men's backs, to go barefooted. This circumstance, the continual humidity, the length of the passage, the muscular force required to tread in a thick and muddy clay, the necessity of fording deep torrents of icy water, render this journey extremely fatiguing; but however painful, it is accompanied, by none of those dangers with which the credulity of the people alarm travellers. The road is narrow, but the places where it skirts precipices, are very rare. As the oxen are accustomed to put their feet in the same tracks, they form small furrows, across the road, separated from each other, by narrow ridges of earth. In very rainy seasons, these ridges are covered with water, which renders the traveller's step doubly uncertain, since he knows not whether he places his foot on the ridge, or in the furrow. As few persons, in easy circumstances, travel on foot in these climates, through roads so difficult, during fifteen or twenty days together, they are carried by men in a chair tied to their back; for, in the present state of the passage of Quindiu, it would be impossible to go on mules. They talk in this country, of going on a man's back, (*andar en carguero*,) as we mention going on horseback; no humiliating idea is annexed to the trade of the carguerоes; and the men who follow this occupation, are not Indians, but Mulattoes, and sometimes even whites. It is often curious to hear these men, with scarcely any covering, and following a profession which we should consider so disgraceful, quarrelling in the midst of the forest, because one has refused the other, who pretends to have a whiter skin, the pompous title of *don*, or of *su merced*. The usual load of a carguero, is six or seven arrobas, (about one hundred and eighty pounds;) those who are very strong, carry as much as nine arrobas, (about two hundred and fifty pounds.) When we reflect on the enormous fatigue to which these miserable men are exposed, journeying eight or nine hours a day, over a mountainous country; when we know that their backs are sometimes as raw as those of beasts of burden, and that travellers have often the cruelty to leave them in the forest, when they are sick; that they earn by a journey from Ibague to Carthago, only twelve or fourteen piastres, (a sum equal in amount to as many dollars,) in a space of fifteen, and sometimes even twenty-five or thirty days; we are at a loss, to conceive how this employment of a carguero, one of the most painful which can be undertaken by man, is eagerly embraced by all the robust young men, who live at the foot of the mountains. The taste for a wandering and vagabond life, the idea of a certain independence amidst forests, leads them to prefer this employment to the sedentary and monotonous labour of cities.

The passage of the mountain of Quindiu is not the only part of South America, which is traversed on the backs of men. The whole of the province of Antioquia is surrounded by mountains so difficult to pass, that they who dislike intrusting themselves to the skill of a carrier, and who are not strong enough to travel on foot from Santa Fé de Antioquia to Bocca de Nares or Rio Samana, must relinquish all thoughts of leaving the country. I was acquainted with an inhabitant of this province, so immensely bulky, that he had not met with more than two Mulattoes capable of carrying him; and it would have been impossible for him to return home, if these two carriers had died, while he was on the banks of the Magdalena, at Mompox or Honda. The number of young men who undertake the employment of beasts of burden at Chaco, Ibague, and Medellin, is so considerable, that we sometimes met a file of fifty or sixty. A few years ago, when a project was formed to make the passage from Nares to Antiquia passable for mules, the carguerоes presented formal remonstrances against mending the road, and the government was weak enough to yield to their clamours. We may here observe, that a class of men near the mines of Mexico, have no other employment than that of carrying other men on their backs. In these climates, the indolence of the whites is so great, that every director of a mine, has one or two Indians at his service, who are called his horses, (cavallitoes,) because, they are saddled every morning, and supported by a small cane, and bending forward, they carry their master from one part of the mine to another. Among the cavallitoes or carguerоes, those who have a sure foot and step easy, are known and recommended to travellers. It is distressing, to hear the qualities of man spoken of in terms, by which we are accustomed to denote the gait of mules and horses. The persons who are carried in a chair by a carguero, must remain several hours motionless, and leaning backward; the least motion is sufficient to throw down the carrier; and his fall would be so much the more dangerous, as the carguero, too confident in his skill, chooses the most rapid declivities, or crosses a torrent on a narrow and slippery trunk of a tree. These accidents are, however, rare, and those which happen, must be attributed to the imprudence of travellers, who frightened at a false step of the carguero, leap down from their chairs.

When the carguerоes reach Ibague, and prepare for their journey, they pluck in the neighbouring mountains, several hundred leaves of the *vijao*, a plant of the family of the bananas, which forms a genus approaching the *thalia*, and which must not

be confounded with the *heliconia bihai*. These leaves, which are membraneous and silky, like those of the Musa, are of an oval form, fifty-four centimetres (twenty inches) in length. Their lower surface is a silvery white, and covered with a farinaceous substance, which falls off in scales. This peculiar varnish enables them to resist the rain, during a long time. In gathering these leaves, an incision is made in the middle rib, which is the continuation of the footstalk, and this serves as a hook, to suspend them when the moveable roof is formed. On taking it down, they are spread out, and carefully rolled up in a cylindrical bundle. It requires about a hundred weight of leaves (fifty killogrammes) to cover a hut, large enough to hold six or eight persons. When the travellers reach a spot in the midst of the forest, where the ground is dry, and where they propose to pass the night, the carguerоes lop a few branches from the trees, with which they make a tent. In a few minutes, the slight timber-work is divided by the stalks of some climbing plant, or threads of the agave, placed in parallel lines, three or four decimetres from each other. The vijao leaves meanwhile have been unrolled, and are now spread over the above work, so as to cover each other, like tiles of a house. These huts thus hastily built, are cool and commodious. If, during the night the traveller feels the rain, he points out the spot where it enters, and a single leaf is sufficient to obviate the inconvenience. We passed several days in the valley of Boquia under one of these leafy tents, which was perfectly dry amidst violent and incessant rains. The mountain of Quindiu, is one of the richest spots in useful and interesting plants. Here we found the palm-tree, (*Ceroxylon andicola*,) the trunk of which is covered with a vegetable wax, the Passiflora in trees, and the majestick *Mutisia grandiflora*, with flowers of a scarlet colour, sixteen centimetres, or six inches long.

Humboldt.

FLATHEAD INDIANS.

The Indians who inhabit the shores of the Columbia river, in North America, are distinguished by the oddity of their manners and customs. They are known by the name of Flatheads, on account of the shape of their sculls. Immediately after the birth of an infant, it is placed in a sort of a cradle in the shape of a trough, the bottom of which is covered with moss. The part on which the head is to rest, is a little more elevated. A piece of pine bark, covered with a cushion to prevent the skin from bruises, is then fitted to the child's forehead, and by means of a cord, passing through holes on each side of the cradle, the cushion is made to press upon its head. This operation continues a whole year, and causes little pain; but, while the process is going on, the appearance of the infant is frightful; and its little black eyes, which the pressure of the bandages squeezes almost out of their sockets, look like those of a mouse in a trap. By the time the ligatures are taken off, the head has attained the requisite degree of flatness; the upper part is rarely more than an inch thick, and it never retains its rotundity. In the eyes of the Indian, this deformity is a grace that cannot be dispensed with. They justify the custom by saying that their slaves have round heads, and therefore, free people ought to have flat ones. In fact, all the children who are born in slavery, unless adopted by Flatheads, inherit not only the degradation of their parents, but also the rotundity of their scull. It can hardly be conceived what a repulsive ugliness this detestable custom gives to the Indians. Nor have they naturally so much beauty, that they need put themselves to the trouble of lessening it by art. The men, indeed, are of good stature, and pretty well shaped; but the women are five or six inches shorter, and have flat noses, and large open nostrils. Their mouths, which they have not wit enough to keep shut, display short and ill-shaped teeth, set in uneven rows, and are never cleaned. These red-skinned ladies are invariably bandy-legged; their feet are broad and flat, their ears slit, their nostrils bored, their hair coarse and thick; and the better to set off their charms, they anoint their skins plentifully with fish-oil. As to their character, the Indians of this part of the new world, are certainly cunning, sober, and patient; but generally also they are thievish, idle, and cruel.

The Flatheads believe in the existence of a good, and an evil genius, as well as of rewards and punishments in another life. According to their creed, the righteous, after death, go to a place of bliss, where they enjoy a perpetual spring, where they again dwell with their wives and children, where the rivers are full of fish, and the plains are covered with bison, the flesh of which forms their principal nourishment.—There they give themselves up to the pleasures of the chase, fearing neither the rigours of winter, nor hunger, nor the horrours of war. The wicked, on the other hand, are transported to a country which is covered with perpetual snow, and where the cold penetrates to the marrow of their bones. From the midst of their torment, they are condemned to see their righteous brethren in the delightful fields, chasing the game, or reposing themselves with their families; but the poor frozen sinners cannot stir one step towards that sunny region. Nevertheless, their misery has an end: it is longer or shorter, according to the degree of their guilt; and after its expiration, they are permitted to become inhabitants of the Indian Paradise.

If nations which call themselves civilized and enlightened, are overrun with charlatans and empiricks, we need not wonder that they play a very successful part among the savages. Each village has its quack doctor. When a native is seized with any malady whatever, this Æsculapius is immediately called in, and begins his course of treatment, by stretching his patient on his back. While he is in this position, his kinsfolk and friends, who are all furnished with two sticks of unequal length, beat time to the measure of a melancholy chant, which the doctor sings through his nose. At intervals, they unite their voices to his. Sometimes a slave is ordered to mount on the top of the hut, where he accompanies this strange harmony by striking on the roof with a great club, and singing with all his might. The quack, in the meantime, kneels down by the sick person, and presses both fists heavily upon his stomach. This violent pressure compels the patient to utter dolorous cries; but the noise of his complaints is drowned by the uproar and racket of the doctor and his assistants, who shout and thump so

much the louder. At the close of each stanza of the hymn, the operator takes both hands of his victim, and blows them; and thus continues to squeeze his stomach and blow upon his hands, till the patient ejects a small white stone, which had been thrust into his mouth by the doctor himself, at the beginning of the operation. Thus he shows to the family, and, with the unabashed effrontery natural to quack doctors, whether civilized or savage, affirms that all danger is over, and that the sick man will quickly be restored to perfect health.

It often happens as may well be supposed, that a poor wretch, who might have been easily cured by the most simple remedies, perishes in consequence of this most barbarous treatment; but let him live or die, the doctor must not be disappointed of his fee. Such instances of their gullibility well entitle these ridiculous people to be called Flatheads—or, simply, *Flats*.

An English traveller, who remained a considerable time among this tribe, has given a description of the methods of torturing their prisoners. A chief of the Blackfoot tribe, having been taken captive in one of their wars, was condemned to death; and the Englishman repaired to the camp, to witness the frightful spectacle. The prisoner was fastened to a tree. The Flatheads, after heating an old gun-barrel red hot, made use of it to burn successfully his legs, thighs, stomach, cheeks, and belly; and then cut the flesh round his nails, which they tore out; and afterward cut off his fingers, joint by joint. —During this horrible torment, the prisoner did not shrink in the least, nor testify the slightest emotion; instead of crying for mercy, and uttering groans, he endeavoured to excite the barbarous ingenuity of his executioneers by taunts, and the most insulting reproaches. One of the Flatheads rushed upon him, and with his knife scooped out one of his eyes in an instant, and clove his nose in two parts. But the poor fellow did not desist from his provocations: —"I killed your brother!" he cried. "I tore off the gray scalp of your father!" The warriour to whom he spoke again rushed upon him, and tore off his own scalp, and was about to plunge his knife into his heart, when the voice of his chief forbade him. With his naked scull, his cloven nose, and the blood streaming from the socket of his eye, the intrepid Blackfoot, offered a hideous spectacle; notwithstanding which, in this terrible condition, he ceased not to heap reproaches and outrageous insults on his foes. "It was I," said he to the chief, "it was I who took your wife prisoner! We tore out her eyes and tongue! We treated her like a dog! Forty of our young warriours"—He had not time to finish what he was going to say; for, at the mention of his wife, the fury of the chief broke through all bounds; and, seizing his musket, he put an end at once to the insults which the prisoner uttered, and the sufferings he endured. These cruelties were even surpassed, by those that were exercised on the female prisoners; and it must be owned, that the Flathead women, showed a more fiendish barbarity than the men. The details of the tortures which they inflicted are too horrible to be described, save with a pen dipped in blood.

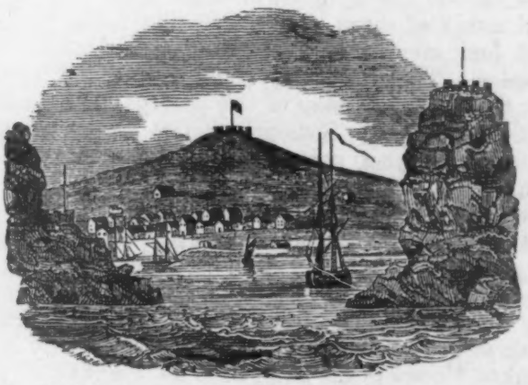
The Europeans have vainly endeavoured to abolish these atrocious customs. The natives pay no attention to what they say. They answer coolly, that the Blackfeet use the Flatheads in the same manner; that it is one of the laws of the war, among the red men, to torture their prisoners; and that nothing can equal the pleasure of vengeance.

AMERICAN COMMERCE.

ST. JOHN'S, NEWFOUNDLAND.

This is the chief town in Newfoundland island, and is well known on account of the excellence of its harbour, which is one of the best in the whole island. The entrance to St. John's harbour forms a long and narrow strait, but not very difficult of access. There are about twelve fathoms water in the middle of the channel, with tolerable good anchorage ground. The most lofty perpendicular precipices rise to an amazing height upon the north side; and the southern shore only appears less striking in its altitude, from a comparison with the opposite rocks. There is a light placed every night on the left side of the entrance, where there is also a small battery and a signal-post. Other batteries of greater strength appear towering above the rocky eminences towards the north. At about two thirds of the distance between the entrance and what may properly be termed the harbour itself lies a dangerous shelf, called the Chain Rock, so named from a chain which can be extended across the strait at that place, to prevent the admission of any hostile fleet.

In the engraving beneath a view is given of the entrance to this harbour, the town, and Fort Townshend.



In addition to the fortifications already noticed, there are several other strong fortresses upon the heights around the town, which render it perfectly secure against any sudden attack. Fort Townshend is situated immediately over the town, and is the usual residence of the governour. Forts Amherst and William are more towards the north; and there is also a small battery perched on the top of a single pyramidal mount, which is called the Crow's Nest.

The harbour of St. John's is most exposed to heavy gales from the northwest, as the wind from that point rushes with extreme violence through a valley to the left of the town.

Light.—Whatever be the difficulties which attach to the theory, that supposes light to consist of material particles, *we are compelled by its properties* to admit, that light acts, as if it were material; and that it enters into combinations with bodies, in order to produce the effects which we have enumerated.

INTERESTING NARRATIVE.

I HAVE just returned from visiting a whale-ship that was last winter attacked by the natives, near an island in the Pacifick. The circumstances of the attack, defence, and ultimate recapture, possess, perhaps, as much interest as any thing that could be imbodied in this article, more particularly, as several different and erroneous accounts have been given.

After getting such information as could be obtained from three persons, I requested an intelligent young man, who was in the ship at the time, to go with me on board, where I could better understand the narrative of the whole affair. He began by giving me the position of the officers and crew, the direction of the land, distance, &c., a part of which I will repeat as well as I can, promising that no description that I can give will approach any thing like the reality of that awful hour. To comprehend it fully, you must go on board, see the shotholes in the deck, and listen to the recital of the transaction by a warm-hearted and brave young sailor, whose sympathies are so keen that he is frequently choked and stopped in his narration by the swellings of a noble, brave, and tender heart, and who frequently has to turn aside, and brush from his check the tear that, in spite of his manhood, tells of a feeling as honourable as the daring bravery exhibited on the day of that heroick defence. His account of the whole affair is one of thrilling interest, and deserves to be recorded by one who can give to it more interest than your humble servant.

The ship was half a mile from the land, a few of the light sails set, but occasionally thrown back to prevent too much headway—the wind very light, and rather off shore. They were on whaling ground and four men were aloft, keeping a lookout for whales. The island was laid down on the chart, but there is no account of any previous intercourse with the natives. Sometime before dinner, a large number of them came off in canoes, and about thirty came on board, with apparent friendly intentions. Their very peaceable and simple behaviour put the captain off his guard, and he omitted the usual precautions, such as compelling them to stay in the canoes, except a very limited number, or keeping them all forward of the mainmast, and other cautious measures generally adopted, for treachery is a marked feature of the savages in the Pacifick.

On this occasion, as many came on board as desired, and all roved the deck, fore and aft, at pleasure. The captain and two first mates were at dinner. Mr. Jones, the third mate, was on deck, with a very small number of men. While he was engaged with his quadrant, getting his observations, the natives seemed to be concerting among themselves, and were evidently afraid of the quadrant, seeing the uses being made of it, and Mr. Jones thinks were deterred by that fear from making the attack, when the resistance would have been much less, there being but four or five white men on deck.

The savages were perfectly naked, and seemed pleased to examine the different tools and parts of the rigging, showing all the simplicity and childish curiosity so common with them on their first acquaintance with civilized nations. When Mr. Jones came up from dinner, (he dined after the senior officers,) the captain was taking some pains to show them the use of the spade in cutting up a whale. These tools are always kept sharp, and in the hands of an able man are most formidable weapons, the blades not more than five inches wide, with handles varying from five to ten feet in length. The captain and first mate stood near each other, and near the mizzenmast, on the starboard side; the third mate, Jones, further aft, on the starboard quarter; the second mate forward of the mainmast, the wheel at this time lashed to leeward, and some four or five of the crew loitering about deck, and a number below. The first intimations of danger were given by an attempt of the savages to come on board with their war-clubs. Jones noticed it, and threw the first one overboard. An attempt to do so with another was resisted. These boarded on the starboard side. In the meantime, they had entered the ship from another direction, with one or two clubs, and before Jones had succeeded in throwing overboard the one he had hold of, a savage had given the captain a mortal blow, and felled him to the deck. The spades were in their sockets, immediately over the quarter-deck. The first blow was a signal for a general engagement, and both parties seemed at once to know that the spades were to be the weapons. In the scuffle for these, the natives being the most numerous, and acting evidently on a concerted plan, had the advantage, and possessed themselves of the greatest number. The first mate got one, and with his first blow killed the murderer of the captain. He then retreated wounded, into the main hatch, where he abandoned himself to his fate, and without attempting further escape or defence, suffered himself to be cut down some minutes after Jones had passed him. All was confusion; the crowd on the deck prevented the crew, except those aloft, from seeing who were killed, or who were still fighting. No voice of command was heard to encourage the crew, or to give directions to their energy and strength, which, acting in concert, might have sooner stopped the current of blood that was already finding its way to the scuppers. The second mate, seeing the captain fall, and the first mate retreat, fled forward, followed by two of the crew, until they reached the end of the gib-boom, and afterward let themselves into the water, where they were despatched. A number fled aloft, to escape instant death. Mr. Jones had succeeded in getting a spade, and found himself immediately engaged in a scuffle for the possession with a number of the enemy. He was thus forced aft, quite to the stern, when seeing no other resource, he dropped his hold, he being then the only white man to be seen on deck. He is not more than twenty-one years of age, rather small of stature, but with the heart of a lion; and never was there an occasion that called for more coolness and bravery than that. All the arms were in the after cabin, and the entrance to that was guarded by half a score of stout men, rendering it impossible to be forced. Without arms, nothing effectual could be done. He, not accustomed to command, and not fully apprized of the fate of the other officers and men, could only see that the officers and crew, dead or alive, had ceased all defensive measures, and the ship was in fact fully abandoned to the savages, and the lives of the survivors of the crew to their tender mercies. Jones at once determined if he did fall, to do so when he could stand no longer.

The only way to reach the cabin and obtain the arms, was by passing down the main-hatch, and removing a large quantity of barrels, staves, and promiscuous lumber, which was closely stowed in the whole distance. This, under ordinary circumstances, would have required hours—but it was the last resort. Quick as thought Jones had formed his plan—when he dropped the spade, sprang through and over his enemies with an impetuosity that astonished them, and secured his way to the hatch. On leaping down he found the chief mate in the situation already described, and from him learned the fate of the other officers, and his own despair. Jones, true to his first purpose, commenced cutting his way through the hatches to the cabin. His energies of mind must have greatly increased his strength. The work of hours was now accomplished in a very few minutes, and after removing and staving barrels and boxes, and pushing aside all obstacles, he found himself in the steerage, or forward cabin. Here was a man for several weeks confined by sickness. Mr. Jones seized his own pistols, and placed them in the hands of the sick man, to guard the gangway, while he stove a hole through the cabin door (which was locked) large enough to admit him, and secured the guns. Here he was detained in collecting the ammunition, fixing flints, loading, &c. He soon succeeded in preparing himself, and his first shot up the gangway took effect. The savages had begun their song of victory. They were evidently unacquainted with firearms, and when, on the first discharge, one of their number fell dead, it produced silence for a moment, which was succeeded by wailing and pounding. The sound of a gun to those who were concealed, and the death of an enemy to those aloft, appeared like a call to the rescue. Hope began to spring up. Jones continued to load and fire as fast as he could, and though many of his shots were at random, he did great execution, especially in the canoes, as they approached the stern exposed to his fire from the cabin windows. Now every survivor became a co-worker. The men aloft, acting well their part, succeeding in setting all the after-sails, and getting up considerable sail at her head to get off shore.—There being no man at the helm, and the savages masters of the deck, one man came down from the foretop, or gib-stay, loosed the flying-gib, suspended in the same way, and hoisted the sail. The men aloft took the precaution to lash the rigging above, to prevent those below from frustrating their plans. They succeeded in bracing the fore-yards in such manner as to make considerable headway off shore. Men who had concealed themselves, in the meantime, had found Jones's track to the cabin, and six of them were loading and passing him guns. One man, after securing every thing aloft, came down the main shrouds to the blocks, and then actually leaped over the heads of the enemy into the hatches, and thence to the cabin, to help fight, as he said. He was severely wounded on his way, and after he got a gun, being induced by his anxiety to make his fire effectual, to occupy an exposed position, received a severe wound from above. He staggered back, saying, "Mr. Jones, I have lost my leg."—Jones bound a cord above the knee to stop the blood, and he sat during the engagement, loading and passing guns. A man was heard at the wheel, who, it appeared, was the chief of the party. He could not be seen, but they fired random shots, and the second, passing through the binnacle, entered the chief just below the ribs on the left side, and passing through the heart, came out on the right side under the arm. He leaped ten feet from the deck and fell dead. Still the canoes approached, and for fifteen minutes longer death was dealt in frightful forms to the astonished natives. Jones now determined to retake the deck at all hazards. Each man with a loaded gun advanced to the gangway. As they passed up they met from those aloft the joyful sound, "They are overboard." Every savage had leaped into the water. The crew levelled their guns, and as the enemy rose to the surface took their last shot, and immediately made sail. One short hour had deprived them of all their senior officers, reduced their number to fourteen fit for duty, cost the savages more than a score of lives, including the chief, ruined the prospects of a voyage, and placed in command of a fine ship, a young man whose courage and skill would make him an ornament to our navy. And if I had the ear of the president, vice-president, secretary, or any other great man who had sufficient influence, I would try hard to get a commission for Mr. Jones, that would be alike honourable to the nation and to him.

After getting a good offing, he gave the proper directions, and assisted in burying the dead. With his own hands he dressed the wounds of the wounded, and saved some that might have been called desperate cases. He navigated the ship through a portion of the most dangerous coast in the Pacifick, and after a voyage of more than fifty days, arrived at the nearest port, and gave her up to the American consul, according to law, from whence she sailed for home, and arrived in June last. It is admitted by the owners, as well as others, that but for the coolness, courage, prudence, and extraordinary skill and perseverance of Mr. Jones, the ship and crew must have been lost; and in viewing the whole case it must be admitted, that he was helped by an unseen arm, or he could not have achieved so much. I still hope that government will bestow on him some mark of distinction, as a reward for his noble achievement. West. Christ. Adv.

HYDROSTATICKS AND HYDRAULICKS.

The fundamental principles of *hydrostaticks* and *hydraulicks* may be familiarly illustrated by a variety of simple experiments, some of which may be rendered extremely amusing. That fluids press in all directions—that their pressure is in proportion to their perpendicular height—that a small quantity of a fluid may be made to counterpoise any quantity, however great—that a fluid specifically lighter than another will float upon its surface—that the surface of all fluids which communicate with each other will be on the same level—that the velocity with which water spouts from holes in the side of a vessel, is in proportion to the square root of the distance of the holes below the surface of the water. These, and similar positions, along with the principles on which siphons, jets, and artificial fountains act, can be illustrated with an apparatus which every intelligent teacher, if he has the least share of mechanical ingenuity, can easily construct for himself, with

the assistance of glass vessels, which are to be found in almost every family. To show that water will find its level, and rise to the same height in tubes which have a communication, an instrument similar to the following, fig. 1, may be constructed: A B and E D are two tubes which have a communication with each other by means of the tube B D; if water is poured into the tube A B, it will run

Fig. 1.

through the tube B D, and stand at the same elevation in the tube E D. To save expense, the tube B D may be made of wood, and plugged up at both ends; and the glass tubes A B, E D, fixed into it at each end with cement; and if B D be made flat on its under part, it will stand on a table without requiring any support. An instrument to show that a small portion of water will counterbalance a large quantity, may be made as follows:—A B, fig. 2, is

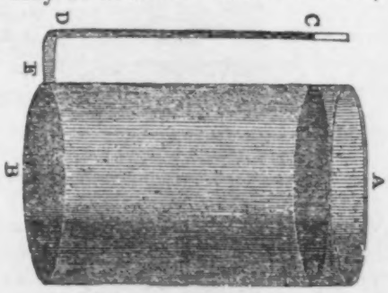
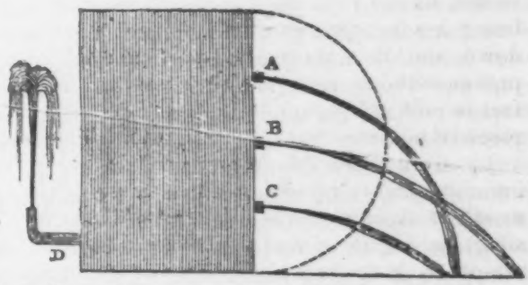


Fig. 2.

Fig. 3.

a vessel which may be either square or round, and which may be made either of wood or tin-plate; C D is a glass tube of a narrow bore, cemented into the short tube F, which communicates with the large vessel; if water be poured into either of these, it will stand at the same height in both, which proves, that the small quantity of water in the tube C D, balances the large quantity in the vessel A B, and illustrates what has been termed the *hydrostatical paradox*. Jets and fountains may be represented and illustrated by such an instrument as fig. 3, where A B is the reservoir, and C D E a tube connected with it, bent at right angles at D; when these are filled with water—the finger having previously been pressed upon the opening F—as soon as the finger is removed, the water rises in a jet, nearly to the height of the fountain A B. A jet may likewise be produced by the instrument represented, fig. 1, by plugging up the tube E D, and opening a hole at C, when a jet will arise after the tubes are filled with water. To show the different quantities and velocities of water spouting at different distances from the surface of a reservoir, such a vessel as that represented, fig. 4, may be used. The water will issue

Fig. 4.



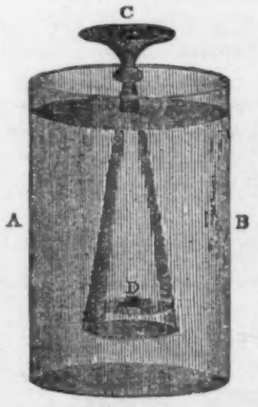
from the orifice at C with with greater velocity, and consequently in greater quantity than at B or A; if the orifice C be four times as deep below the surface as the orifice A, it will discharge twice as much water in a given time as A, because two is the square root of four; if the orifice B be in the centre of the column of water, it will project the water to the greatest horizontal distance. The vessel here represented may be made either of wood or of tin-plate, and if a bent tube be inserted at D, and the holes A B C shut up, it may serve to exhibit a *jet d'eau*. The *cup of Tantalus*, the *fountain at command*, the *hydraulick dancers* and *divers*, and other entertaining devices, might also be exhibited, and accompanied with explanations of the principles on which they act. By such means, several of the leading principles of hydrostaticks might be easily impressed upon the youthful mind, and would doubtless be found of practical utility in future life, provided the teacher is careful to show by familiar examples, how they explain many of the phenomena of nature and operations of art.

The science of *pneumaticks* affords scope for many curious discussions and experiments respecting the air and atmospherical phenomena, which may be rendered interesting to the young. In illustrating the pressure, elasticity, and other properties of the atmosphere, the assistance of the airpump, with its usual apparatus, is highly desirable; as, without it, some of the most interesting experiments on this subject cannot be performed. But where this instrument, on account of its expense, cannot be procured, various useful and entertaining experiments may be exhibited by means of a simple apparatus which almost every one can procure. For example, the *pressure* of the atmosphere may be proved to the conviction of every one by such simple experiments

as the following.—The common experiment of filling a wineglass with water, covering its mouth with a piece of paper, and then inverting it, is quite decisive of the atmospherick pressure; for the paper underneath, instead of being convex by the pressure of the water within, is *concave*, by the pressure of the atmosphere from without; and no other cause can be assigned why the water is supported in the glass. Another simple experiment, where no paper is employed, proves the same fact. Take a glass tube, two or three feet long, with a narrow bore; put one end of it into a vessel of water, put your mouth to the other end and make a deep inspiration till the air is drawn out of the tube; when the water will rush to the top of the tube; then place your thumb on the top to prevent the access of air from above, and when the other end of the tube is taken out of the water, the column of water will be suspended in the tube by the atmospherick pressure although the lower end of it is open. When the air is sucked out of the tube, a vacuum is produced, and the external air, pressing upon the surface of the water in the vessel, forces it to the top of the tube; the thumb being applied prevents the air pressing the water down, and the atmospherick pressure on the bottom prevents the water from running out. The same fact is proved by the following experiment:—Let a piece of burning paper be put into a wineglass, so as to rarefy or exhaust the air, and while it is still burning, press the palm of the hand against the mouth of the glass, when it will adhere with a considerable degree of force, by the pressure of the atmosphere on the bottom and sides of the glass. This experiment may be varied as follows:—Pour a certain quantity of water into a saucer; invert a wineglass over a piece of burning paper, or burning brandy, and, after holding it a short time in the flame, place it in the saucer, when the water will rush up into the glass in consequence of the atmospherick pressure, as it did in the glass tube when it was exhausted of its air by suction. These and similar experiments, which every one may perform, are as decisive proofs of the atmospherick pressure as those which are performed by means of the air-pump. Such experiments, when conducted by intelligent teachers, may easily be applied to the explanation of the causes of certain natural and artificial processes, such as the firm adherence of two polished surfaces—the action of a boy's sucker in lifting large stones—the operation of *cupping*—the process of a child sucking its mother's breast—the effects produced by cements—the rise of water in pumps—the firm adhesion of snails and shell-fish to rocks and stones—the action of siphons—what is termed *suction*, as when we take a draught of water from a running stream—the fact that a cask will not run, in certain cases, unless an opening is made in its top—and many similar processes, some of which will be found of considerable practical utility.

The *elasticity* of the air may be proved by such experiments as these:—Take a bladder, and fill it with air by blowing into it, and then apply a force to the sides of it, so as to compress it into a smaller space; when the force is removed it immediately expands and fills the same space as before. This experiment proves, not only the elasticity of air, but that, though invisible, it is as much a *material* substance as wood or iron; for no force can bring the sides together without breaking the bladder, although the parts of an empty bladder may be squeezed into any shape. The same thing is proved by the following experiment:—Open a pair of common bellows, and then stop the nozle, so that no air can rush out, and no force whatever can bring the parts together, without bursting the leather, or unstopping the nozle. That heat increases the elasticity of air, may be shown, by placing before a strong fire a bladder with a small quantity of air, when the small portion of air will expand, till the bladder appear quite full and ready to burst. These experiments may be applied to the explanation of such phenomena as the following:—Why the compressed air between the liquid and the cork, in a bottle of beer or ale, bursts forth in the form of froth when the cork is drawn—why fishes, in consequence of their *air-bladders*, are enabled to rise and sink in the water—and why the carcass of a man that has been drowned, in a few days rises and floats on the surface for a short time, and then sinks to rise no more. The *compressibility* of air may be shown, by taking a glass tube which is open only at one end, and of course full of air, and plunging the open end into a vessel of water. when the water will be seen to have risen to a small height, near the bottom of the tube; which proves that the air which fill the whole length of the tube is compressed by the water, into a smaller space.—In a similar way the principle of the *diving-bell* may be illustrated. Let A B, fig. 5, represent a large tumbler or drinking-glass, which may be nearly filled with water. Place a piece of cork on the surface of the water, and over the cork an aleglass, C D, with its mouth downward; then push the glass perpendicularly down toward the bottom of the tumbler, and the cork will appear swimming a little above the bottom; plainly indicating that there is no water above it in the aleglass, which is prevented from entering by the resistance of the air within.

Fig. 5.



The water in the tumbler may represent the water of a river or of the sea; the aleglass may represent the diving-bell, in which a person may sit with safety in the depths of the sea without touching the water, provided fresh air be supplied. A small quantity of water will be found to have entered the aleglass, and the deeper it is plunged in any vessel the higher will the water rise within it. At the depth of thirty-three feet where the pressure of the atmosphere is doubled, a diving-bell will be half filled with water—at the depth of sixty-six feet, it will be two thirds filled—at the depth of ninety-nine feet,

it will be three fourths filled, and so on in proportion to the depth; which shows the propriety of having this vessels in the form of a *bell*, that the perpendicular height of the water may be as little as possible. The following simple experiment illustrates the pressure of the atmosphere in a mode somewhat different from those already stated. Procure a tin vessel about six or seven inches long, and three in diameter, having its mouth about a quarter of an inch wide, as E F, fig. 6. In its bottom make a number of small holes, about the diameter of a common sewing-

Fig. 6.

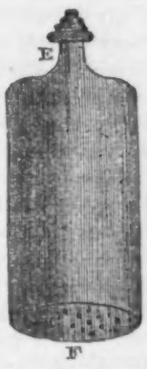
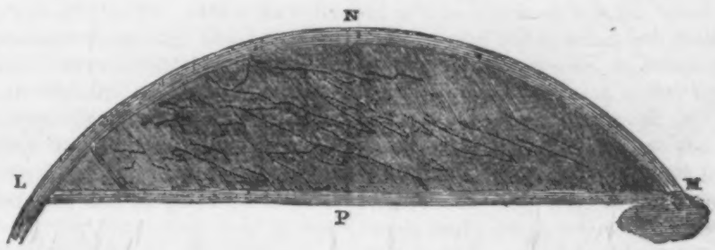


Fig. 7.

needle.—Plunge this vessel in water, and when full cork it up, so that no air can enter at the top. So long as it remains corked, no water will run out—the pressure of the atmosphere at the bottom preventing it; but as soon as it is uncorked, the water will issue from the small holes in the bottom, by the pressure of the air from above. The same experiment may be made by means of a tube, seven or eight inches long, and about three fourths of an inch in diameter, having two or three small holes in its bottom; and another tube, G H, fig. 7, of the same dimensions, having a small hole in each side, I K, will illustrate the *lateral* pressure of the atmosphere—the water being retained when it is corked, and running out when the cork is removed. It will likewise illustrate the lateral pressure of water and other liquids.

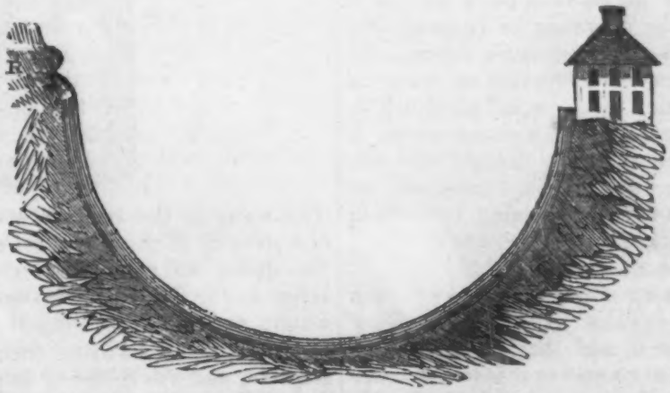
Several amusing experiments may also be performed by means of *siphons*, when concealed in drinking-cups and other vessels; and the utility of the principle on which they act may be illustrated in certain practical operations. For example, their use may be shown in conveying water over a rising ground. In fig. 8, let M represent a pond or pool of water, in a quarry or other situation, which is wished to be drained, and where there is no declivity or lower ground adjacent to which the water can be conveyed—it may be carried over the rising ground M N, by means of the siphon M N L; provided the perpendicular elevation N P, above the level of the pool M, does not exceed thirty-two feet,

Fig. 8.



for to that height only will the water rise in the siphon by the pressure of the atmosphere; and provided that the end of the siphon at L descends a little way beyond the level of the pool at M—in which case, when the siphon is filled, the water will rush out at L, so long as any remains in the pond. In the same way may be shown how a cask of liquor may be decanted by a siphon placed in a hole made in its upper side. The use of the siphon might likewise be shown when placed in a reverse position,

Fig. 9.



as in fig. 9, when it may be applied to the purpose of conveying water from a fountain at R, along a hollow or valley to a house, S, at the same height on the other side of the valley; and however deep or broad the valley may be, the water may in this manner be conveyed, provided the siphon is sufficiently strong near its lower parts to sustain the perpendicular pressure of the water.

The following simple and interesting experiment might be exhibited to show the effects of the *expansion* of air. Procure a common Florence flask, F G, fig. 10, and pour into it a large wineglassful of water; then take a tube, I H, bent at the top, H, like a small siphon, and fasten it *air-tight* into the mouth of the flask, I, so that its bottom may be immersed in the water at K, but not touching the bottom of the flask. Then immerse the flask into a vessel of very hot water, when, in consequence of the expansion of the air in the flask, the water at K will be forced up into the tube I H, where it is received into a wineglass at H. Holding the wineglass, into which the water is now received, at the end of the tube, as represented in the figure, take the flask out of the hot water, and plunge it into another vessel full of cold water, and the water in the wineglass will be thrown back into the bottom of the flask, by the pressure of the atmosphere on its surface at H.

Fig. 10.

The flask may then be again immersed in the hot water, when the water at its bottom will be thrown up into the wineglass as before, and the operations may be repeated as often as judged expedient. This experiment, when dexterously performed, seldom fails to produre a pleasing effect upon the spectators, especially when the water is tinged with a *red* colour, by means of the sulphurick or any other acid dropped into an infusion of red cabbage.* Dick.

* In arranging and performing such simple experiments as those above stated, it is expedient that the teacher or operator should know how to cut vials and glass tubes, and to form siphons. The neck of a common vial may be cut off, so as to form a tube, by slightly indenting a portion of the circumference with the sharp edge of a common file, and then, with the point of a hot iron, beginning at the indentation, go round the circumference of the vial, and the head will at once be separated from the body. Otherwise, tie a thread, which has been steeped in turpentine or spirits of wine, firmly round the mouth of the vial, then set fire to it, and the operation is performed. In the same manner, long glass tubes may be cut into any lengths. If the tubes be of a small diameter, it is only requisite to indent them with a file at the point where they are intended to be cut, and then, holding the one end of the tube in the left hand, give a blow with the right on the other end, and the tube will snap asunder.—To bend a glass tube into the form of a siphon:—Put the tube through the bars of a common grate, when the fire is burning clear; let the part of the tube which is to be bent, be in the centre or hottest part of the fire; take hold of the tube at both ends, and when it begins to melt near the middle, gently bend it, with both hands, in the form which is wanted, and then remove it from the fire. A little experience will render such operations quite easy and efficient for the purpose intended. If a small bend only at one end of the tube is required, that end may be put into the fire till it begin to melt, then take hold of it gently with a pair of tongs, and bend it in the form required with the right hand.

HOUSEHOLD DUTIES AND OPERATIONS.

It will be our endeavour from time to time to introduce under this head the consideration of subjects which are of peculiar importance to the young housekeeper, a knowledge and due comprehension of which are necessary for her guidance in the important duties which it is, generally speaking, her department to superintend. There is, perhaps, no one thing of more importance to the good management of a family than regularity in accounts: and having first ascertained what may be the amount of her housekeeping expenses, and what those expenses are expected to comprise, the chief care of the young housekeeper should be that she does not exceed the allotted sum. Very probably she will at first find this rather difficult; but if she keeps a strict account of every penny spent, and if she take care so to arrange and digest those accounts month after month, as to bring before her at a glance the purposes to which her income has been allotted, she will easily see, not only how much is the excess, but how that excess may be avoided in future.

We cannot too strongly impress upon all, the absolute necessity for exactness and regularity in household accounts. There is, perhaps, (at all events in the middle classes of society,) no one thing which more promotes the welfare of a family than attention to this important branch of economy, and certainly nothing which sooner tends to create a breach in the confidence which must exist in order to secure happiness, than the feeling that it is neglected. To every housekeeper we would urge, again and again, this rule:—First ascertain what you *may* spend, and then be always prepared to show *how* you have spent it. And if you have lately taken on yourself the name and duties of a wife, be sure that nothing will more tend to gain and preserve the confidence of your husband, than convincing him that you act as his faithful steward in the distribution of the income, which it is his duty (as it will also be his pleasure) to provide for you, and which he intrusts to your hands in the fullest and most perfect faith.

We are not great friends to printed forms of accounts, though they may by some be found very useful. We subjoin to these brief observations, a simple plan, and a practical one too, for we copy from a book kept on it for many years, and we know of none better. For the daily expenditure we recommend a common ruled account book, into which should be copied *every morning* the expenses of the previous day, from the slate, memorandum book, bills, or wherever else they have been noted down at the time of payment. The expenses should be placed on the right hand page, the money received on the left, and every morning the account should be balanced, and the cash in hand ascertained to be correct, This may be called a *cash-book;* it contains a general account of all moneys received and spent. At the end of every month a balance should be struck, and the amount of the cash remaining in hand be carried to the next left-hand page, to form the commencement of the following month's account. Then collect the sums spent for different purposes under their respective heads, and add them together. You may have a form for this purpose, where, under the heads, bread, butter, &c., &c., are collect-

ed the sums spent during the month for those articles whilst *all other expenses*, which cannot well be classed, are ranked under the general head of *sundries*. Thus will be shown in one page how much has been spent during the month, and for what.

At the end of six months, we again collect the different items under still more general heads, and thus we see at once the amount of expenditure, and the application for half the year. By repeating the same operation at the end of the next six months, and adding any other expense which may have been paid by the master of the family, such as wine, house-rent, &c., &c., the actual year's expenditure is clearly shown.

We hope that the mode is thus rendered quite clear, and that by the aid of our remarks it will be easily followed. We can answer for its utility and excellence. A common memorandum-book, which will cost sixpence, will answer the purpose for the monthly and half-yearly digests; whilst a square account-book will, perhaps, be found the best for the cash-book.

We shall conclude by some general rules for the housekeeper chiefly adapted to the season. The spring is more particularly the time for house cleaning, and bleaching linen, &c., though of course these matters require attention in every month of the year; and as a servant has been known to begin scrubbing stairs from the bottom upward, a few remarks on these common subjects may not be useless. Begin at the top of the house; first take up the carpets, and if they require it, send them at once to be scoured, that they may be ready to replace, by the time the rooms are cleaned. Some persons object to send carpets and other things to a scourer, as their substance is in some degree injured by the process; they may be well cleaned by washing them with soda and water, after having been taken up, well beaten, and nailed down again.

Remove all the furniture out of the room, have the chimneys swept where fires have been in use, then scour the grates, &c.; wrap old towels (which should be set aside for such purposes) round the bristles of the broom, and sweep carefully and lightly the ceiling and paper; then with a flannel or sponge, (which is preferable,) and *soap* and water, wash all the paint well, and as fast as one person wets, let another follow with linen rags, and wipe the paint perfectly dry; let the windows be cleaned, and lastly, scrub the floor. The furniture should be well rubbed before it is replaced. It is a good plan to have the paper swept every three or four months. If the curtains and hangings are moreen, it is better to take them down for the summer months, and after a thorough shaking and brushing, to pin them up in paper, linen or silk with camphire, which is the best, cleanest, and most agreeable preservative from moths. Some persons use powered black pepper.

Furs and woollen cloths are preserved in the same way; and if a house is much infested with moths, the parcels should be put into a cool oven, or hot closet, every three or four weeks for a night, and then be opened, and every article well shaken, and replaced; it is very important to keep them in a dry cool place. General neatness, however, is the greatest enemy to these troublesome insects, and by frequently clearing out wardrobes and drawers, all such intruders are disturbed. It is well to expose to the air (but not to the sun) and thoroughly shake any stocks of linen or woollen clothes which are lying out of use. As bugs have become so general a nuisance, it is necessary to observe that much care and attention are required to exterminate them. This may be done by taking the bedsteads entirely asunder, and washing every part of them with a strong solution of corrosive sublimate; if they infest the walls, the paper should be removed, and the walls washed with the same preparation before repapering them; and in inveterate cases, the floor should be painted all round the skirting board to the extent of about four inches. As the corrosive sublimate is a strong poison, the bottle containing it should be so marked, and a caution given to whoever applies it. Perhaps the cheapest preparation is a solution of the sublimate in spirit of turpentine, with the addition of water; the powerful smell of the turpentine will tend to further the object in view. It is a bad plan to nail carpets down in bedrooms; the dust occasioned by sweeping them on the floor injures the furniture, and prevents the frequent scrubbing of the floor, which is so essential to health and cleanliness; they should be of a convenient size for taking up, and beating very frequently. Every separate piece of bed furniture should be marked with a number, as No. 1 for one room, No. 2 for another, and so on, that when washed there may arise no difficulty in replacing them; the same plan should be observed with mattresses, beds, bolsters, pillows, blankets, and quilts; and an inventory of the whole should be affixed in some convenient place in each room.

To prevent blinds from blowing out under the sashes in windy weather, and breaking the windows, rings should be fixed to the blinds, and guide lines fastened to the window-frames.

The summer is the best season for examining and repairing household linen, as the days are long, and servants more at leisure from the absence of fires. Sheets should be turned sides to the middle *before* they get very thin to avoid patching, which has a very unsightly appearance. July is a good month for washing counterpanes, blankets, and heavy things in general, for they dry quickly, and are consequently of a better colour. In all large "washes," the linen, and especially cotton stockings, should be put to soak over night; both soap and labour are thus saved. You should always provide your washers with little wooden bowls to throw their soap into, which will prevent their letting it stand in the water wasting; make also a proper flannel "blue-bag," and let it be a rule that this and the bowls shall be delivered up after the wash, that they may set aside in readiness for another occasion.

It is a very bad plan to allow cloths to remain long dirty; in large families, three weeks should be the longest space between the washes, for not only are the clothes injured, but more soap and labour are required to get them clean.

In washing flannels, prepare a lather expressly of soft water, soap, and a good deal of blue. Do *not* rinse them after the lather, but ring them as dry as possible, shake them and hang them out.* Flannel should be scalded before it is made up, since it *will*

* The opinions of housewives differ as to this, but experience has led us to prefer the plan we have recommended.

shrink in the first washing. To remove the starch or "dressing" from new Irish linen, it should be put to soak in cold water over night, and be scalded next morning. Silk of almost any colour may be washed by putting it in soak for a night in cold soft water, (for black silk add some blue,) the next day wash it out, wring it as dry as you can, and wipe off the wet that remains with a soft cloth; then mangle or iron it.

In July, currant, raspberry, and gooseberry gelly and jam are made. When black currant gelly is made for medicinal purposes, moist sugar should be used; but very coarse moist sugar spoils the flavour of all fruits excepting apples.

Before the period for preserving, &c., arrives, all bottles and jars necessary for the purpose should be thoroughly cleaned and dried, and a stock of sugar should be laid in, remembering always that what is most *pure* is best for preserves of all descriptions.

It is always a bad plan to buy sugar by the pound, for the paper is weighed in with every pound. To break loaf sugar into small pieces ready for the nippers, use an *iron* hammer and cleaver; a wooden mallet chips, and the particles of wood become so incorporated with the sugar-dust, that it is difficult to separate it.

Apricots and greengages should not be over ripe for preserving, they should be quite perfect; apricots require to be skinned, but not greengages.

Oranges are preserved, and orange-wine is made this month. A little honey added to raspberry-jam makes it taste richer.

Make also strawberry-jam, cherry-brandy, and cherry-cordial. If the season is fine plums will be ready for preserving at the end of the month; they are a useful preserve where there are children or a large family. The proper sort is the large, long, black mussel plum, of which to one gallon add three pounds of moist sugar, bake them till they begin to crack, and then put them in jars of a size that will serve for once using, (as the admission of air spoils them,) tie them close down, and keep them in a dry place.

Cherries, gooseberries, damsons, and even currants, may be done in the same way, adding rather more sugar to the last. In securing gellies and jams use white tissue paper *without* brandy, instead of writing-paper dipped in brandy, for the spirit evaporates, and the watery particles produce mouldiness.

At this season, fresh butter is usually soft and disagreeable to the *eye*, even when the flavour is good; to prevent this, place the dish in which it is, to stand in cold spring water with a little saltpetre dissolved in it. Butter may be brought to the table in water, but it should never stand long in it, for the part which comes in contact with the water becomes white, and has an unpleasant appearance. If fresh butter cannot be procured every or every other day, it is well where much is consumed to sprinkle five or six pounds with a little salt, and press it close down in a basin or stone pan, which prevents its becoming rancid, and it is just as good for pastry, melting, and toast, and also for bread and butter, if washed through two or three waters. This is also a good time for buying last year's cheese; it is now in good condition; new cheese is wasteful, and has not attained its full flavour.

During the summer months, meat requires constant attention. Every day it should be examined to remove fly-blows, if any; it should be carefully wiped dry under flaps, and in all the little crevices, and skinny bits and kernels should be cut off, for they are the first to taint; under the flap of a leg of mutton is a skin which in hot weather soon assumes a yellow tinge; remove it, and with care a leg of mutton may be kept for several days in the hottest weather; also in a rump of beef, there is a long vein visible, at the root of which, and buried deep, is a kernel, which if not taken out, will in hot weather taint the whole joint; country butchers often omit to remove it. When meat is purchased for salting, do not allow the butcher to send it any distance in the heat of the day; you can never be certain of its taking the salt if it has been heated; if, however there is no alternative, throw it into a tub of cold water for a few hours, then wipe it dry, and examine it well before salting. It should be sprinkled with salt to extract the blood the first day—on the next day be wiped with a clean cloth; and in warm weather the first brine must be thrown away, but in cold it may be boiled, and all impurity be skimmed off; and then the meat may be regularly salted the second day. Canvass lids should be placed over salting-tubs, to admit air and exclude flies, which are more destructive to salting meat than to fresh.

Care must be taken to secure bacon and hams from the fly, which is very destructive to them; the best method of preserving hams is by putting them into coarse calico or canvass bags; paper is apt to break in damp weather.

Herbs for kitchen use, and camomile blossoms, should be cut and dried, but not in the sun.

This is also the best time for laying in a store of soap; if it is cut into good-sized pieces and laid on shelves, it will harden.

THE BURNING OF THE FORESTS.

With what pleasure have I seated myself by the blazing fire of some lonely cabin, when, faint with fatigue, and chilled with the piercing blast, I had forced my way to it through the drifted snows that covered the face of the country as with a mantle The affectionate mother is hushing her dear babe to repose, while a group of sturdy children surround their father, who has just returned from the chase, and deposited on the rough flooring of his hut the varied game which he has procured. The great backlog, that with some difficulty has been rolled into the ample chimney, urged, as it were, by lighted pieces of pine, sends forth a blaze of light over the happy family. The dogs of the hunter are already licking away the trickling waters of the thawing icicles that sparkle over their shaggy coats, and the comfort-loving cat is busied in passing her furry paws over each ear, or with her rough tongue smoothing her glossy coat.

How delightful to me has it been, when, kindly received and hospitably treated under such a roof, by persons whose means were as scanty as their generosity was great, I have entered into conversation with them respecting subjects of interest to me, and received gratifying information. When the humble but plentiful repast was ended, the mother

would take from the shelf the BOOK of books, and mildly request the attention of her family while the father read aloud a chapter. Then to heaven would ascend their humble prayers, and a good-night would be bidden to all friends far and near. How comfortably have I laid my wearied frame on the buffalo-hide, and covered me with the furry skin of some huge bear! How pleasing have been my dreams of home and happiness, as I there lay secure from danger, and sheltered from the inclemency of the weather.

I recollect that once, while in the state of Maine, I passed such a night as I have described. Next morning, the face of nature was obscured by the heavy rains that fell in torrents, and my generous host begged me to remain in such pressing terms, that I was well content to accept his offer. Breakfast over, the business of the day commenced: the spinning-wheels went round, and the boys employed themselves, one in searching for knowledge, another in attempting to solve some ticklish arithmetical problem. In a corner lay the dogs dreaming of plunder, while close to the ashes stood grimalkin seriously purring in concert with the wheels. The hunter and I seated ourselves each on a stool, while the matron looked after her domestick arrangements.

"Puss," quoth the dame, "get away; you told me last night of this day's rain, and I fear you may now give us worse news with trickish paws." Puss accordingly went off, leaped on a bed, and rolling herself in a ball, composed herself for a comfortable nap. I asked the husband what his wife meant by what she had just said. "The good woman," said he, "has some curious notions at times, and she believes, I think, in the ways of animals of all kinds. Now, her talk to the cat refers to the fires of the woods around us, and although they have happened long ago, she fears them quite as much as ever, and indeed she and I, and all of us, have good reason to dread them, as they have brought us many calamities." Having read of the great fires to which my host alluded, and frequently observed with sorrow the mournful state of the forests, I felt anxious to know something of the causes by which these direful effects had been produced. I therefore requested him to give me an account of the events resulting from those fires which he had witnessed. Willingly he at once went on, nearly as follows:—

"About twenty-five years ago, the larch or hackmitack trees were nearly all killed by insects. This took place in what hereabouts is called the 'black soft-growth-land,' that is the spruce, pine, and all other firs. The destruction of the trees was effected by the insect cutting the leaves, and you must know, that although other trees are not killed by the loss of their leaves, the evergreens always are. Some few years after this destruction of the larch, the same insects attacked the spruces, pines, and other firs, in such a manner, that before half a dozen years were over, they began to fall, and, tumbling in all directions, they covered the whole country with matted masses. You may suppose that, when partially dried or seasoned, they would prove capital fuel, as well as supplies for the devouring flames which accidentally, or perhaps by intention, afterward raged over the country, and continued burning at intervals for years, in many places stopping all communication by the roads, the resinous nature of the firs being of course best fitted to ensure and keep up the burning of the deep beds of dry leaves or of the other trees."—Here I begged him to give me some idea of the form of the insects which had caused such havock.

"The insects," said he, "were, in their caterpillar form, about three quarters of an inch in length, and as green as the leaves of the trees they fed on, when they committed their ravages. I must tell you, also, that in most of the places over which the fire passed, a new growth of wood has already sprung up, of what we lumberers call hard-wood, which consists of all other sorts but pine or fir; and I have always remarked that wherever the first natural growth of a forest is destroyed, either by the axe, the hurricane, or the fire, there springs up spontaneously another of quite a different kind." I again stopped my host to inquire if he knew the method or nature of the first kindling of the fires.

"Why, sir," said he, "there are different opinions about this. Many believe that the Indians did it, either to be the better able to kill the game, or to punish their enemies the Pale-faces. My opinion, however, is different; and I derive it from my experience in the woods as a lumberer. I have always thought that the fires began by the accidental fall of a dry trunk against another, when their rubbing together, especially as many of them are covered with resin, would produce fire. The dry leaves on the ground are at once kindled, next the twigs and branches, when nothing but the intervention of the Almighty could stop the progress of the fire.

"In some instances, owing to the wind, the destructive element approached the dwellings of the inhabitants of the woods so rapidly that it was difficult for them to escape. In some parts, indeed, hundreds of families were obliged to flee from their homes, leaving all they had behind them, and here and there some of the affrighted fugitives were burnt alive."

At this moment, a rush of wind came down the chimney, blowing the blaze of the fire towards the room. The wife and daughter, imagining for a moment that the woods were again on fire, made for the door, but the husband, explaining the cause of their terrour, they resumed their work.

"Poor things," said the lumberer, "I dare say that what I have told you brings sad recollections to the minds of my wife and eldest daughter, who, with myself, had to fly from our home, at the time of the great fires." I felt so interested in his relation of the causes of the burnings, that I asked him to describe to me the particulars of his misfortunes at the time. "If Prudence and Polly," said he, looking towards his wife and daughter, "will promise to sit still, should another puff of smoke come down the chimney, I will do so." The good-natured smile with which he accompanied this remark, elicited a return from the women, and he proceeded:—

"It is a difficult thing, sir, to describe, but I will do my best to make your time pass pleasantly. We were sound asleep one night, in a cabin about a hundred miles from this, when about two hours before day, the snorting of the horses and lowing of the cattle which I had ranging in the woods suddenly wakened us. I took yon rifle, and went to

the door to see what beast had caused the hubbub, when I was struck by the glare of light reflected on all the trees before me, as far as I could see through the woods. My horses were leaping about, snorting loudly, and the cattle ran among them with their tails raised straight over their backs. On going to the back of the house, I plainly heard the crackling made by the burning brushwoods, and saw the flames coming towards us in a far-extended line. I ran to the house, told my wife to dress herself and the child as quickly as possible, and take the little money we had, while I managed to catch and saddle the two best horses. All this was done in a very short time, for I guessed that every moment was precious to us.

"We then mounted, and made off from the fire. My wife, who is an excellent rider, stuck close to me; my daughter, who was then a small child, I took in one arm. When making off as I said, I looked back and saw that the frightful blaze was close upon us, and had already laid hold of the house. By good luck, there was a horn attached to my hunting-clothes, and I blew it, to bring after us, if possible, the remainder of my live stock, as well as the dogs. The cattle followed for awhile; but, before an hour had elapsed, they all ran as if mad through the woods, and that, sir, was the last of them. My dogs, too, although at all other times extremely tractable, ran after the deer that in bodies sprung before us, as if fully aware of the death that was so rapidly approaching.

"We heard blasts from the horns of our neighbours, as we proceeded, and knew that they were in the same predicament. Intent on striving to the utmost to preserve our lives, I thought of a large lake, some miles off, which might possibly check the flames; and, urging my wife to whip up her horse, we set off at full speed, making the best way we could over the fallen trees and the brush heaps, which lay like so many articles placed on purpose to keep up the terrifick fires that advanced with a broad front upon us.

"By this time we could feel the heat; and we were afraid that our horses would drop every instant. A singular kind of breeze was passing over our heads, and the glare of the atmosphere shone over the daylight. I was sensible of a slight faintness, and my wife looked pale. The heat had produced such a flush in the child's face, that when she turned toward either of us, our grief and perplexity were greatly increased. Ten miles, you know, are soon gone over on swift horses; but, notwithstanding this, when we reached the borders of the lake, covered with sweat and quite exhausted, our hearts failed us. The heat of the smoke was insufferable, and sheets of blazing fire flew over us in a manner beyond belief.

"We reached the shores, however, coasted the lake for awhile, and got round to the lee side. There we gave up our horses, which we never saw again. Down among the rushes we plunged by the edge of the water, and laid ourselves flat, to wait the chance of escaping from being burnt or devoured. The water refreshed us, and we enjoyed the coolness.

"On went the fire, rushing and crashing through the woods. Such a sight may we never see! The heavens themselves, I thought, were frightened, for all above us was a red glare, mixed with clouds of smoke, rolling and sweeping away. Our bodies were cool enough, but our heads were scorching, and the child, who now seemed to understand the matter, cried so as nearly to break our hearts.

"The day passed on, and we became hungry. Many wild beasts came plunging into the water beside us, and others swam across to our side and stood still. Although faint and weary, I managed to shoot a porcupine, and we all tasted its flesh. The night passed I cannot tell you how. Smouldering fires covered the ground, and the trees stood like pillars of fire, or fell across each other. The stifling and sickening smoke still rushed over us, and the burnt cinders and ashes fell thick about us. How we got through that night I really cannot tell, or about some of it I remember nothing." Here the hunter paused, and took breath. The recital of his adventure seemed to have exhausted him. His wife proposed that we should have a bowl of milk, and the daughter having handed it to us, we each took a draught.

"Now," said he, "I will proceed. Towards morning, although the heat did not abate, the smoke became less, and blasts of fresh air sometimes made their way to us. When morning came, all was calm, but a dismal smoke still filled the air, and the smell seemed worse than ever. We were now cooled enough, and shivered as if in an ague-fit; so we removed from the water, and went up to a burning log, where we warmed ourselves. What was to become of us I did not know. My wife hugged the child to her breast, and wept bitterly; but God had preserved us through the worst of the danger, and the flames had gone past, so I thought it would be both ungrateful to him, and unmanly to despair now. Hunger once more pressed upon us, but this was easily remedied. Several deer were still standing in the water, up to the head, and I shot one of them. Some of its flesh was soon roasted, and, after eating it, we felt wonderfully strengthened.

"By this time, the blaze of the fire was beyond our sight, although the ground was still burning in many places, and it was dangerous to go among the burnt trees. After resting awhile, and trimming ourselves, we prepared to commence our march. Taking up the child, I led the way over the hot grounds and rocks; and, after two weary days and nights, during which we shifted in the best manner we could, we at last reached the 'hard woods,' which had been free of the fire. Soon after, we came to a house, where we were kindly treated for awhile. Since then, sir, I have worked hard and constantly as a lumberer; but, thanks be to God, here we are, safe, sound, and happy!"

Audubon.

Mackerel.—There is not a fish that exceeds the mackerel in the brilliancy of its colours, or in the elegance of its shape. The fine deep blue upon the back is crossed by many black streaks, and accompanied by a tinge of green, which varies as the fish changes its position. The bright silver colour of the abdomen, and the varying tinge of gold green which runs along the sides, are eminently beautiful in the species; but are only to be seen to perfection when it is first taken out of the water, as death impairs the colours.

LADIES' DEPARTMENT.

AMUSEMENT AT HOME.

Transferring.—SELECT a white wood work-box for the first attempt, which having a flat top will be easily done. The following are the materials for the work. Some lithographick prints, a bottle of transfer varnish, one of white hard varnish, one of spirits of wine, and two flat tin varnishing brushes, each an inch and a half broad. Select a pretty print for the top of the box, and cut away the paper to within half an inch of the drawing; but to ensure its being placed straight and evenly on the box, rule a straight line at the top and bottom of the print, and cut away that. Mark an even distance from each end of the drawing to enable you to fix it at equal distances from the sides of the box; and placing it with the printed side downward, in its proper position, make a pencil mark at the two top corners, to assist you in placing it when wet. Now pour as much water into the tea-tray as will cover the bottom of it, and taking hold of the print with both hands, lay it gently on the water, with the drawing upward, where it may float for about five minutes; taking care that the water does not flow over the printed side. To varnish the box, which is next to be done, pour the white hard varnish into the pipkin, over the middle of which tie a piece of wire or strong thread, and dipping one of the brushes into it, draw it two or three times across the wire to moisten it well, and then spread it with a steady hand on the top of the box, commencing in the middle, and drawing to the end one way, and then from the middle, and to the end the other way; then spread another line of varnish close by the side of the first, in the same manner, until the whole is covered. Take the brush off very gently at the end of each stroke, to prevent a large quantity being left on the box; and if any part appears to have been missed, put a second coat of varnish on in about five minutes after the first, only in a contrary direction to that. If these varnishes are used in damp or cold weather, you must have a fire in the room where they are, to prevent their becoming chilled. Pour the varnish back into the bottle, immediately after it is done with, and wipe out the brush with a piece of rag. The print is now to be taken out, and laid upon a sheet of stiff paper; this must not be done too quickly, or it will cause the water to run over the print, which must be carefully avoided. To ensure an entire freedom from damp, place a sheet of clean blotting paper on the drawing, and smooth it all over with the hand, to absorb any wet that may have penetrated: then move the blotting paper to a dry part, and press it a little heavier, until it ceases to make the blotting paper damp. The transfer varnish is to be poured into the pipkin, about half the bottle full; the brush already used, is dipped into it as before, and it is then to be spread over the print, by drawing from one end to the other as many times as will entirely cover the drawing, taking care not to let the varnish lie in a thick ridge toward the edge of the drawing; which will be the case if too great a quantity be taken in the brush; on the other hand, if too small a quantity of varnish be taken, it will cause small streaks to be omitted, which is a worse fault than the former. By looking on the print sidewise toward the light, you will readily perceive if every part has been well covered. It is then to be taken up, holding it by the paper where the varnish has not been spread, and placed carefully, with the varnished side downward, in the proper place as before determined.

A sheet of writing-paper is now placed on the print, and pressed all over, by rubbing the fingers firmly to and fro; the object of which is to make the print adhere closely to the wood and to exclude the air, which will otherwise remain under the print, and cause holes in finishing.

You now proceed to remove the paper from the print, by rubbing it with the fingers backward and forward while it is wet, and the paper will come off in small flakes or rolls: this is to be done lightly, until all the paper is removed, and the print appears plainly through. While this is done, a little water may be added occasionally with one of the brushes, to keep it moist. Be very careful to rub off the paper entirely at the edge, that no outline may be visible. When you have taken off as much as you can, by light rubbing, let it dry when it will have the appearance of being covered with flour; and to remove the outline which shows so plainly in consequence of the transfer varnish being a darker colour than the white hard varnish, clear it off with a piece of rag, dipped in spirits of wine. It must then be left until the next day, when it must be varnished.

The reason that so much rubbing does not take off the drawing, as well as the paper, is that the black paint which is used for printing is made with colour ground in oil, and when the paper is put on the water, the oil which is in the paint resists the influence of the water, and only the paper becomes damp, and as the varnish is applied while the paper is damp, it adheres closely to the print but not to the damp paper, and the water used to damp the paper in rubbing off softens and dissolves the size in the paper, but does not touch the print; therefore if the latter is rubbed off it can only be on account of too much friction being employed, and not from any influence the water has in softening the paint. The varnish used, is of a kind that will not unite with water, and, therefore, it is not necessary it should be dry before the paper is rubbed off; on the contrary, if suffered to get dry, it will be almost impossible to remove it. The varnish is very slow in drying, and if left, will penetrate the paper as the water dries out, and occasion the difficulty referred to.

It is decidedly better, to leave the print without varnish for a day. The transfer varnish, as mentioned before, is slow in drying, and if a large quantity is put on at one time, it will wrinkle in drying, and cause the print to look very rough. You are obliged to put on three coats of varnish at once when you do apply it, and those with the transfer already on will make such a body of varnish, that you will be disappointed when you see its irregular appearance the next day.

Sometimes, when first learning to transfer, a number of holes are seen. Where the print comes off in so decided a form as in some of these places, it was either not varnished at all just there, or not pressed sufficiently to exclude the air; in other places there has been too violent rubbing. It is better to leave it, rather than to work so much over it, and make these numerous holes. After some practice, you will be able to approach the print much

more nearly without fear of producing them. If there be a tendency of the print to peel off in one or two places, I should say you have neglected to clear the white hard varnish out of the brush thoroughly, before you used it for the transfer varnish. This mixing with the transfer would render it decidedly less adhesive than is required. These small holes may be filled up by painting over them with Indian-ink. Take a piece of window-glass, that has been broken in a slightly curved form, and scrape off the whole, then put on more varnish and another print. The filling up the small breaks with Indian-ink, may be better done after the first coats of varnish have been put on. In order to varnish the top of the box to clear it, pour the white hard varnish into the pipkin, and let the brush stand in it three or four minutes to soften it, before it is applied to the box. A coat of this varnish is then to be spread over the whole of the top as before, and in five minutes a second, and in another five minutes a third. It is necessary to apply them thus quickly to ensure a perfect transparency to the print. When mezzotint engravings are transferred it will be desirable to add a fourth coat, in order to clear them properly, and they should remain on the water twice the length of time required to soften lithographick prints. It will take considerably longer also to rub off the paper when you have placed them down, and they will look much whiter when all the paper that can be removed is rubbed off. From prints of this description being enclosed in a definite form, there is less trouble to make the outline of the paper disappear.

Vinegar is used to transfer coloured prints with. As there is considerably more size in the paper when prints are coloured, it requires some liquid stronger than water, completely to dissolve it. You therefore mix an equal quantity of vinegar and water for them, instead of water alone; leaving them on at least half an hour, to allow the size to be thoroughly dissolved, and then proceed as with the plain engravings. Be very careful to select those coloured subjects for transferring, which have had no gamboge used in colouring them, as it will spread over the whole surface, and entirely disfigure it.

Gamboge may generally be detected by looking at the painting sidewise toward the light, and if the yellows and greens shine at all, it is the effect either of gamboge or gum, both of which render it unfit for the purpose of transferring; the former for the reason already assigned, and the latter because it prevents the varnish taking hold of the colours sufficiently to resist the influence of the water in rubbing off the paper. We have now finished the process of transferring; and if three more coats of varnish be given to the box in a few days it will have a very good effect, and be done enough for many purposes. But as you may sometimes wish to set off your work to the best possible advantage, we shall go on to show you the process of polishing. The subject, in this case, must have at least twenty coats of varnish, in addition to those already given, they must be applied in the following manner:—Not more than four coats are to be put on in one day, two in the morning, one a few minutes after the other; and two in the evening. This may be done for five days successively; but no inconvenience will arise if several days are suffered to elapse between the putting on the different coats of varnish. It must be left at least a week to harden, when it will be in a fit state to polish.

The difficulties in varnishing are these; if you have too great a quantity of varnish in your brush, it will lie in ridges where the strokes meet each other, and occasion considerable trouble in polishing; if too little, it will be troublesome to guide the brush. Be careful also to have nearly an equal quantity in the brush each time it is spread over the subject, that it may dry evenly; and draw the brush in one direction only while the varnish is wet, that it may not disturb the surface. Do not leave the varnish in the pipkin exposed to the air, for any length of time, as it will then get thick, and cause little bubbles in applying it. If you neglect to clean the brush at any time after using it, it must be softened in spirits of wine before it can be used again. The subject must not be put very near the fire nor in the sun, as either will be likely to cause blisters in the varnish. It must not be touched while in a wet state, nor should any thing rest upon it before it is hard.

One of the chief advantages of polishing is, that it not only improves the appearance of the varnish but makes its beauty considerably more durable. The box looks very well; but if left for a few weeks, it will have lost its gloss entirely, and no longer look like a new article.

The materials for polishing are a few Dutch rushes and a packet of rotten stone, and a glass of water, some flannel, a small piece of lard, and some fine flour. To ascertain whether the varnish is hardened enough for polishing, press your finger firmly on the box, and if it leaves no impression, it is quite dry. Take a piece of rush, and cutting off the black knots from the ends, press it between the fingers to make it flat instead of round, and then carefully place the bent side upon the varnish, so that the two ends may rise a little from the box to avoid scratching the surface; and resting your fingers upon it, rub to and fro until all the roughness is worn away.

The appearance of white dust, is because the varnish is made with gums dissolved in spirits of wine, and as the spirit dries out completely, nothing but the gums remain; the rush, which has a very rough surface, grinds away the gum, and reduces it to a fine powder, causing the appearance of flour which you will notice. The size of the top of a box about seven inches by five, will occupy about twenty minutes in rubbing with the rush: one piece of rush will last about ten minutes. When all the irregular rough surface has been reduced in this manner, rub with your fingers alone for five minutes, to remove any small scratches that may have been made with the rush. Thus far the intention has been to obtain a perfectly smooth surface, the next step is to make it shine with a beautiful gloss. Now put on an old glove to keep your fingers from the rotten stone; folding a piece of flannel three or four times, dip it in the water to moisten it, and then on to the rotten stone to take up about as much as would cover a shilling, and rub it on the box to and fro, and in a circular direction for ten minutes, keeping it moist but not very wet. This is to be cleaned off with a damp sponge, and wiped dry with soft flannel or an old silk handkerchief. When perfectly dry and free from rotten stone, a very little lard may be rubbed over it with a piece of silk velvet, or the

fingers alone, for two minutes, then dip the velvet or fingers on the flour, and rub over the lard, and continue to do so until all the lard comes off gradually.

The only incurable errour you can commit is that of rubbing too long or heavily either with the rush or the rotten stone, so as to wear away the varnish entirely to the wood. This you must carefully guard against. If by awkwardly handling the rush, you should make any deep scratches on the varnish, and they still appear after using the rotten stone, it will be necessary to give them three or four coats of varnish, and put it away to harden prior to finishing with the rotten stone and flour. Be very particular that no particle of grit or hard material be suffered to mix with any of the polishing-dust, lest it should cause scratches or marks. The polishing is a most delicate process, and the slightest inattention to the proper method of proceeding will lead to very great trouble.

THE EXTENSION MOTIONS.

In order to supple the figure, open the chest, and give freedom to the muscles of soldiers, the first three movements of the extension motions, as laid down for the sword exercise, are ordered to be practised.

It is, indeed, truly observed that too many methods cannot be used to improve the carriage, and banish a rustick air; but the greatest care must be taken not to throw the body backward instead of forward, as being contrary to every true principle of movement.

We accordingly here introduce these extension motions, as not less valuable to ladies than to men, adding the fourth and fifth, and prefixing to each the respective word of command, in order that they may be the more distinctly and accurately executed.

Attention.—The body is to be erect, the heels close together, and the hands hanging down on each side.

First Extension Motion.—This serves as a caution, and the motion tends to expand the chest, raise the head, throw back the shoulders, and strengthen the muscles of the back. *One.*—Bring the hands and arms to the front, the fingers lightly touching at the points, and the nails downward: then raise them in a circular direction well above the head, the ends of the fingers still touching, the thumbs pointing to the rear, the elbows pressed back, and the shoulders kept down.

Two.—Separate and extend the arms and fingers, forcing them obliquely back, till they come extended on a line with the shoulders; and, as they fall gradually thence to the original position of attention, endeavour, as much as possible, to elevate the neck and chest. These two motions should be frequently practised, with the head turned as much as possible to the right or left, and the body kept square to the front: this tends very materially to supple the neck, &c.

Three.—Turn the palms of the hands to the front, pressing back the thumbs with the arms extended, and raise them to the rear, till they meet above the head; the fingers pointing upward, with the ends of the thumbs touching.

Four.—Keep the arms and knees straight, and bend over from the hips till the hands touch the feet, the head being brought down in the same direction.

Five.—With the arms flexible and easy from the shoulders, raise the body gradually, so as to resume the position of attention. The whole of these motions should be done very gradually, so as to feel the exertion of the muscles throughout. To these extension motions, drill-sergeants, in their instructions, add the following, as similarly useful.

One.—The forearms are bent upon the arms upward and toward the body, having the elbows depressed, the shut hands touching on the little finger sides, and the knuckles upward, the latter being raised as high as the chin, and at the distance of about a foot before it.

Two.—While the arms are thrown forcibly backward, the forearms are as much as possible bent upon the arms, and the palmar sides of the wrist are turned forward and outward.

These two motions are to be repeatedly and rather quickly performed. A modification of the same movements is performed as a separate extension motion, but may be given in continuation, with the numbers following these as words of command.

Three.—The arms are extended at full length in front, on a level with the shoulders, the palms of the hands in contact.

Four.—Thus extended, and the palms retaining their vertical position, the arms are thrown forcibly backward, so that the backs of the hands may approach each other as nearly as possible.

These motions also are to be repeatedly and rather quickly performed.

Another extension motion, similarly added, consists in swinging the right arm in a circle, in which, beginning from the pendent position, the arm is carried upward in front, by the side of the head, and downward behind, the object being, in the latter part of this course, to throw it as directly backward as possible.—The same is then done with the left arm.—Lastly, both arms are thus exercised together.

These motions are performed quickly

THE EXERCISE WITH THE ROD.

The rod for this purpose should be light, smooth, inflexible, and need not be more than three or four feet in length.

First exercise.—The rod is first grasped near the extremities by the two hands, the thumbs being inward.

Without changing the position of the hands on the rod, it is then brought to a vertical position: the right hand being uppermost holds it above the head, the left is against the lower part of the body.

By an opposite movement, the right is lowered and the left raised.

This change is executed repeatedly and quickly.

Second exercise.—From the first position of the rod, it is raised over the head; and, in doing so, the closer the hands are, the better will be the effect upon the shoulder.

It is afterward carried behind the back, holding so firmly that no change takes place in the position of the hands.

This movement is then reversed, to bring it back over the head to the first position.

Third exercise.—The same exercises are performed by grasping the stick with the hands in an oppo-

site position; that is to say, with the thumbs in front or the palms of the hands forward.

It is raised parallel with the shoulders, extending it first on the left and then on the right arm.

Fourth exercise.—It is next raised above the head, the hands being still in their new position.

It is afterward lowered behind the back.

These exercises cannot be performed in all their different movements with promptitude and regularity without many trials and repetitions. Their tendency is to confirm the good position and the flexibility of the shoulders, produced by the extension motions.

VENERABLE TREES.

THE leading article in the Horticultural Register for April, is by General Dearborn on the cultivation of forest-trees. It contains some curious statements respecting the ages to which trees sometimes attain. How few and fleeting do our short days appear, when we think of these "medals of distant ages!" How fitly, and with what a salutary appeal to the heart, are they planted around a family home, to link one generation of those who dwell there, with another, for hundreds and thousands of years!—How beautiful, how appropriate, how easily adapted to our wishes, and made to utter their solemn, their soothing, their impressive lessons according to our will, are these materials that God hath provided wherewith to erect for one's self a "living monument!"

General Dearborn says:—

Adanson and De Candoll have ascertained and published accounts of the probable longevity of numerous celebrated trees. Some of the cedars of Mount Lebanon, measured in 1660 by Maundrell and Pocock, were found to have been nearly eight hundred years old; the oak of Welbecklane, described by Evelyn, must have been fourteen hundred, the linden of Choille, five hundred and thirty-eight, and that of Irons, five hundred and eighty-three—the olive-trees in the garden of Jerusalem certainly existed at the time of the Turkish conquest of that city, and one at Pescia in Italy had endured seven centuries. The English yew-trees of Fountain Abbey, in the county of York, have survived twelve centuries, those in the churchyard of Crowhurst, in Surrey, fourteen hundred—that of Fotheringgall, in Scotland, from twenty-five to twenty-six hundred—that of Braburn, in Kent, three thousand. But they describe two other trees of a most remarkable character, viz.:—the Boaback, estimated to be five thousand one hundred and fifty years old, and the cypress of Taxodium, in Mexico, which is one hundred and seventeen feet and ten inches in circumference, and is still more aged.

The ages of the following remarkable trees have been ascertained, with as much exactness as historical date, or the principles, which have been derived from the actual admeasurement and counting the circles of trees of like kind afford:—

	Age, 300 yrs.
A date-tree in Egypt,	
Apricot-tree in Damascus,	324
Red-oak of Mount Etna,	400
Walnut-tree of Balbec,	406
Almond-tree in Damascus,	640
Fig-tree in Damascus,	648
Olive-tree of Palestine,	719
Fig-tree of Palestine,	780
Olive-tree of Asia Minor,	850
A live-oak in Louisiana,	1000
Sycamore or plane-tree of Palestine,	1050
Sycamore of Heliopolis,	1805
One of the cedars of Mount Lebanon,	1824
Peletin (Terebinthus) of Asia Minor,	1890
A cedar of Mount Lebanon,	2112
The celebrated chestnut of Mount Etna,	2660
Sycamore of the Bosphorus,	4020

The sycamore near the ruins of Heliopolis, according to the tradition in Egypt, existed before the visit of Joseph and Mary, and they sat under its shadow, and drank water from its neighbouring well. The accumulation of mud, from the deposite of the Nile, has long destroyed the original tree, but sprouts have put forth from the original stump; as they form part of a circle, calculations were deduced therefrom of the size and age of the original tree, which was added to that of those which now exist.

The sycamore of the Bosphorus, under which it is said Godfrey of the first crusading army encamped, has also disappeared, leaving ten trees, which sprang from the stump; one of which, being measured, was found to be one thousand and fifty years old; and it is possible that others of equal age, have been removed, and that the present trees are the second remove from the parent stock.

The chestnut of Mount Etna, grew from the stump of a felled tree.

Plants.—All plants are formed of similar component particles, varying only in arrangement and amount; and no particles, that tended to form one composition, could tend to form another.

USEFUL KNOWLEDGE.

To Make Coffee.—There are various recipes for preparing and refining coffee; the following is the best that has ever come under our view, and is available in all places. Procure your coffee fresh roasted and not too brown, in the proportion of a quarter of a pound for three persons. Let it be Mocha, and grind it just before using. Put it in a basin, and break into it an egg, yolk, white, shell and all. Mix it up with a spoon to the consistence of mortar, place it with warm—not boiling—water in the coffee-pot, let it boil up and *break* three times, then stand a few minutes, and it will be as clear as amber, and the egg will give it a rich taste.

Use of Salt to prevent stains.—If red wine, fruits, jams, &c., &c., be spilt on a table-cloth, the *anti*-economical mode of removing them, is either, to apply bleaching liquor at home; or if, we are too idle, or too much occupied, or too careless about the matter, we give general directions to our laundress, and she either extracts the stains or not, "as it may happen;" and too often, if the former, it is done with so little caution, that the liquid is spilt where it is not required, and not being noticed, cannot be washed out, and the consequence is that beautiful table-linen is frequently found with holes, that are perfectly unaccountable to the owner of them; and blame attaches, in consequence, to every one, from the bleacher to the shopkeeper, when she alone is in fault. Bleaching liquid is very seldom required to be used in a family, if due attention be paid to a stain. The moment it is made, let salt (common table-salt) be rubbed on the spot *before it have time to dry.* The use of the salt is to keep it damp till the cloth is taken to the wash, when, without any further trouble or attention, it will entirely disappear by the usual process of washing. If the stain have had time to dry, the application of salt will too often fail in the effect intended; and then the use of bleaching liquor will probably be required. This, if cautiously rinsed from the linen, will not injure cotton or linen goods.

To polish Mahogany Tables.—Grate very small a quarter of an ounce of white soap; put it into a new glazed earthen vessel with a pint of water; hold it over the fire till the soap is dissolved; then add the same quantity of white wax cut into small pieces, and three ounces of common wax. As soon as the whole is incorporated, it is fit for use. When used, clean the table well, dip a bit of flannel in the varnish when *warm*, and rub it on the table; let it stand a quarter of an hour, then apply a hard brush in all directions, and finish with a bit of clean dry flannel. This will produce a gloss like a mirror; and, to those who dislike the smell of turpentine or oil, will be found very useful.

Iron Mould.—Spirit of salt, oxalick acid, salt of lemons, are the usual applications to extract those unsightly stains; and as they are all so much of the same nature, that, unless great caution be used in their application, the article will drop into holes, it becomes every mistress of a family to consider whether such a risk should be left to a laundress, or whether *she* be not the more likely person to effect a perfect application, as she must or ought to have her own interests at heart, more strongly than a person wholly indifferent to her. The only caution requisite, is to rinse the article thoroughly after the application, till, on applying the tongue to it no acid taste remains.

To Clean Marble.—Pound very finely a quarter of a pound of whitening, and a small quantity of stone blue; dissolve in a little water one ounce of soda, and mix the above ingredients carefully, together with a quarter of a pound of soft soap. Put the whole into an earthen pipkin, and boil it for a quarter of an hour on a slow fire, carefully stirring it. Then, when quite hot, lay it with a brush upon the marble, and let it remain on half an hour. Wash it off with warm water, flannel, and scrubbing-brush, and wipe it dry.

To Make Blacking.—Three ounces of ivory-black; two ounces of treacle; half an ounce of vitriol; half an ounce of sweet oil; quarter of a pint of vinegar, and three quarters of a pint of water. Mix the oil, treacle, and ivory-black gradually to a paste; then add the vitriol, and, by degrees, the vinegar and water. It will produce a beautiful polish.

Christmas-Pudding.—One pound of bread crumbs, rubbed through the colander; half pound flour; one pound and quarter suet, *very finely* chopped; quarter pound sugar; one pound currants; half pound raisins, stoned and chopped. Mix well together, and then add—two ounces candied citron; one ounce ditto orange-peel; one nutmeg, grated; a little mace, cinnamon, and three cloves pounded; quarter of a teaspoonful of powdered ginger; the peel of one lemon finely chopped. Mix well again, and then add—one wineglassful of brandy; one ditto white wine; the juice of one lemon. Mix well together, and then stir in gradually, six well-beaten eggs. Boil five hours, and sift sugar over the top when served.

It is exceedingly convenient when making Christmas-pudding, to boil several at once in various sized moulds or basins, as they will keep well for a month or six weeks, and can be served on an emergency by merely reboiling them—say one hour for a pint basin. After the first boiling remove the cloth, and when the pudding is cold, cover it with a dry clean cloth.

A plain Lemon-Pudding.—The juice of three lemons, the peel of one rubbed off with sugar, six ounces loaf-sugar powdered, (excepting what has been used for the lemon-peel,) a good sized teacupful of bread crumbs; while it is soaking together, beat up four eggs, leaving out two whites; melt one ounce of fresh butter, and mix all well together; line and edge a dish with puff paste, pour in the above, and bake in a quick oven for three quarters of an hour.

A Baked Apple-Pudding.—Butter a pie-dish and line it with crumbs of bread, then place a layer of apple (cut as for pie) in the bottom of the dish; sprinkle it with moist sugar, then a layer of crumbs, and so on alternately till the dish is filled, ending with a *thick* layer of crumbs; pour melted fresh butter over it, and bake for an hour.

MISCELLANY.

NORTHERN ANTIQUITIES.

The royal society of northern antiquaries at Copenhagen, announce the early publication of a highly interesting work, in relation to the discovery of this country, to be called *Antiquitates Americanæ;* which will contain a curious collection of accounts in relation to voyages of discovery to our continent, as early as the tenth century by the Scandinavians. "The prospectus of this great work," says the New York Sun, "in which these remarkable statements are given, is greatly enhanced by the 'great apparent probability, amounting, indeed, almost to certainty, that it was a knowledge of these facts that prompted the memorable expedition of Columbus himself.' It is said to be a well-authenticated fact, that this great navigator visited Iceland in the year 1477; and, by conversing as he did in Latin with the clerical functionaries of the country, the editors of the 'Antiquitates Americanæ' are of opinion, that he could not have failed to obtain from them some information respecting the voyages of their ancestors to this country, which to them were well known. That not only the Danes, Scandinavians, Norwegians, and ancient Britons, visited and colonized this continent at remote periods, but also the Phenicians, Greeks, Romans, and Israelites, at periods still more remote, is conclusively established by the interesting discoveries in our native antiquities, that have been made within these few years past. But it does not necessarily follow, that all of these emigrations were performed by sea-voyages; for Mr. Josiah Priest, in his intensely interesting work, entitled 'American Antiquities, and Discoveries in the West,' has rendered it very probable, that many of them were performed by land-journeys.

"In Iceland, which is about one hundred and twenty miles east of Greenland—and Greenland is supposed to have been originally, if indeed not now, connected with this continent—have been found the remains of an ancient structure, two hundred rods in circumference, built of stone, and the walls of which were in some places fifty feet high. It was a Norwegian castle, of wonderful magnitude, and precisely similar in character to many ruins found in North and South America.

"But other ruins are found on this continent, which agree with the architecture of the Egyptians; and there is ample proof that it was once long inhabited by civilized and skilful nations, of various origins. It is highly probable that nearly all of our Indian tribes, are descended from the Tartar hordes who poured into this country, and who made war not only against the civilized colonists, but against its aboriginal inhabitants. Incredible as it may appear to those who have not investigated the subject, there is much evidence to show that the most ancient aborigines, of our western country at least, were a race of men whose stature did not average four feet.

An Antique.—A venerable and beautiful relick of old times has been disinterred, as one may say, from a burial of thirty years and more, in Norfolk. This is nothing less than the mace, employed before the Revolution, by the borough-court, as a symbol of authority. It is of richly-wrought silver, three feet six inches long, and weighing eighty-six ounces. It consists of a polished staff, having a crown on the top, with the British arms, the rose and thistle, and other devices. The crown weighs twenty-eight ounces.—From an inscription on the staff, it appears that this beautiful piece of workmanship was presented to the corporation of Norfolk in 1753, by the Hon. Robert Dinwiddie; then lieutenant-governour of Virginia. In 1790, it was committed to the clerk of the borough-court for safe keeping, and by him deposited, in 1805, in the vault of the Virginia bank, where it has ever since remained undisturbed, and almost forgotten.

Filling up of Lake Superiour.—This mighty lake is the largest body of fresh water in the known world; its length is four hundred and eighty miles, and its breadth one hundred and sixty-one; its circumference about one thousand one hundred miles, and its depth nine hundred fathoms. Its waters are remarkable for their unrivalled transparency. About one thousand streams empty themselves into this lake, sweeping in sand, primitive boulder-stones, and drift timber, which sometimes accumulate so as to form islands in the estuaries. A lignite formation, indeed, is said to be now in progress. Within a mile from the shore, the water is about seventy fathoms; within eight miles, one hundred and thirty-six fathoms. From the above causes, the lake is gradually filling up.

Lake Erie, from similar causes, is also filling up. This sheet of water is two hundred and seventy miles in length, sixty in breadth, and two hundred fathoms in depth. It is gradually becoming shallower. Long Point, for example, has, in three years, gained no less than three miles on the water. On its southern shore, serious encroachments have been made in many places. For a considerable distance above the mouth of Black river, the bank of the lake is low, and without rock. Thirteen years ago, the bank was generally sloping, with a wide beach; now the waves beat against a perpendicular bank, which, from continual abrasion, often falls off. From one to three roods in width are worn away annually.

Hot and Cold Springs.—In the Blue mountains, about thirty-seven miles from Batavia, in the island of Java, there is a spring of water, so hot, that few persons can bear immersion in it; within little more than two feet of this almost boiling caldron, another spring arises, so cold, that it almost instantly benumbs those who attempt to use it. Those waters overflowing, join in a current, and supply a bath formed by the natives, of such a temperature as to be delightful at all seasons of the year.

It is mentioned, as a curious circumstance, that in the midst of the supposed-to-be alluvial prairies of Illinois, immense detached rocks of granite are found weighing from one to twelve thousand pounds, although no quarry of that foundation has ever been discovered in the state. These stones are called, in mineralogy, boulders; and the circumstances under which they are found, have given rise to much speculation in regard to their origin.

LITERARY NOTICES.

Mellichampe, a Legend of the Santee. By the Author of "The Yemassee," "Guy Rivers," &c. In two volumes. New York: Harper & Brothers, 82 Cliff st. Our readers will doubtless be highly gratified by the publication of a new novel from the pen of that popular American author, Mr. Simms, and we assure them that their anticipations of a rich literary treat, will be more than realized by a perusal of the book. The work is founded on circumstances intimately connected with the history of our war for independence, and therefore, from the nature of the subject, of great interest. Added to this, the skill of the novelist has been happily exerted in weaving the web of incident throughout the whole of the two volumes; and the result has been a book which will add not a little to the well-merited fame of Mr. Simms. Mellichampe is decidedly the best of his productions, and will be extensively read and admired. To give our readers some idea of what they may expect in it, we quote the following from the preface. Mr. Simms remarks, that "the reader must not be disinclined to accept Mellichampe as a historical romance. It is truly and legitimately such. It is imbued with the facts, and, I believe, so far as I myself may be admitted as a judge, it portrays truly the condition of the time.—The events made use of are all historical; and scarcely a page of the work, certainly not a chapter of it, is wanting in the evidence which must support the assertion. The career of Marion, as here described, during the precise period occupied by the narrative, is correct to the very letter of the written history. The story of Barsfield, so far as it relates to publick events, is not less so. The account which the latter gives of himself to Janet Berkley—occurring in the fourteenth chapter of the second volume—is related of him by tradition, and bears a close resemblance to the recorded history of the notorious Colonel Brown, of Augusta, one of the most malignant and vindictive among the southern loyalists, and one who is said to have become so solely from the illegal and unjustifiable means which were employed by the patriots to make him otherwise.

"The death of Gabriel Marion, the nephew of the general, varies somewhat, in the romance, from the account given of the same event by history: but the story is supported by tradition. The pursuit of the 'swamp fox' by Colonel Tarleton—a pursuit dwelt upon with much satisfaction by our historians, as an admirable specimen of partisan ingenuity on both sides, follows closely the several authorities, which it abridges. The character of Tarleton and his deeds at this period, present a singular contrast, in some respects, to what was known of him before. His popularity waned with his own party, and his former enemies began to esteem him more favourably. We have, in Carolina, several little stories, such as that in 'Mellichampe,' in which his human feelings are allowed to appear, at brief moments, in opposition to his wonted practices, and quite at variance with his general character.

"The destruction of the mansion-house at 'Piney Grove,' by Major Singleton, and the means employed to effect this object, will be recognized by the readers of Carolina history, and the lover of female patriotism, as of true occurrence in every point of view; the names of persons alone being altered, and a slight variation made in the locality. Indeed, to sum up all in brief, the entire materials of 'Mellichampe,'—the leading events—every general action—and the main characteristicks, have been taken from the unquestionable records of history, and, in regard to the novelist, the scarcely less credible testimonies of that venerable and moss-mantled druid, Tradition."

A Treatise on Language, or the Relation which Words bear to Things. In four parts, By A. B. Johnson. New York: Harper & Brothers. A handsomely printed octavo of about three hundred pages, devoted to the elucidation of one precept, namely, to interpret language by nature, instead of reversing the rule, and interpreting nature by language. The first part treats of language with reference to existences which are external of man: the second, of language with reference to phenomena internal of man: the third, of language with reference to the relation which words bear to each other: and the fourth, of language with reference to some of the uses to which we apply it. All these topicks are treated in an able and novel manner. The work must be the result of much close thinking, hard study, and painful investigation. The subject is new and deserves to be examined.

The Adventures of Roderick Random. By T. Smollett, M. D. With Illustrations by George Cruikshank. New York: Harper & Brothers, 1836. Another of the Roscoe series of the popular English novelists, got up in the same neat style as Humphrey Clinker, Tom Jones, and Gil Blas, with exact facsimiles of Cruikshank's humorous illustrations.

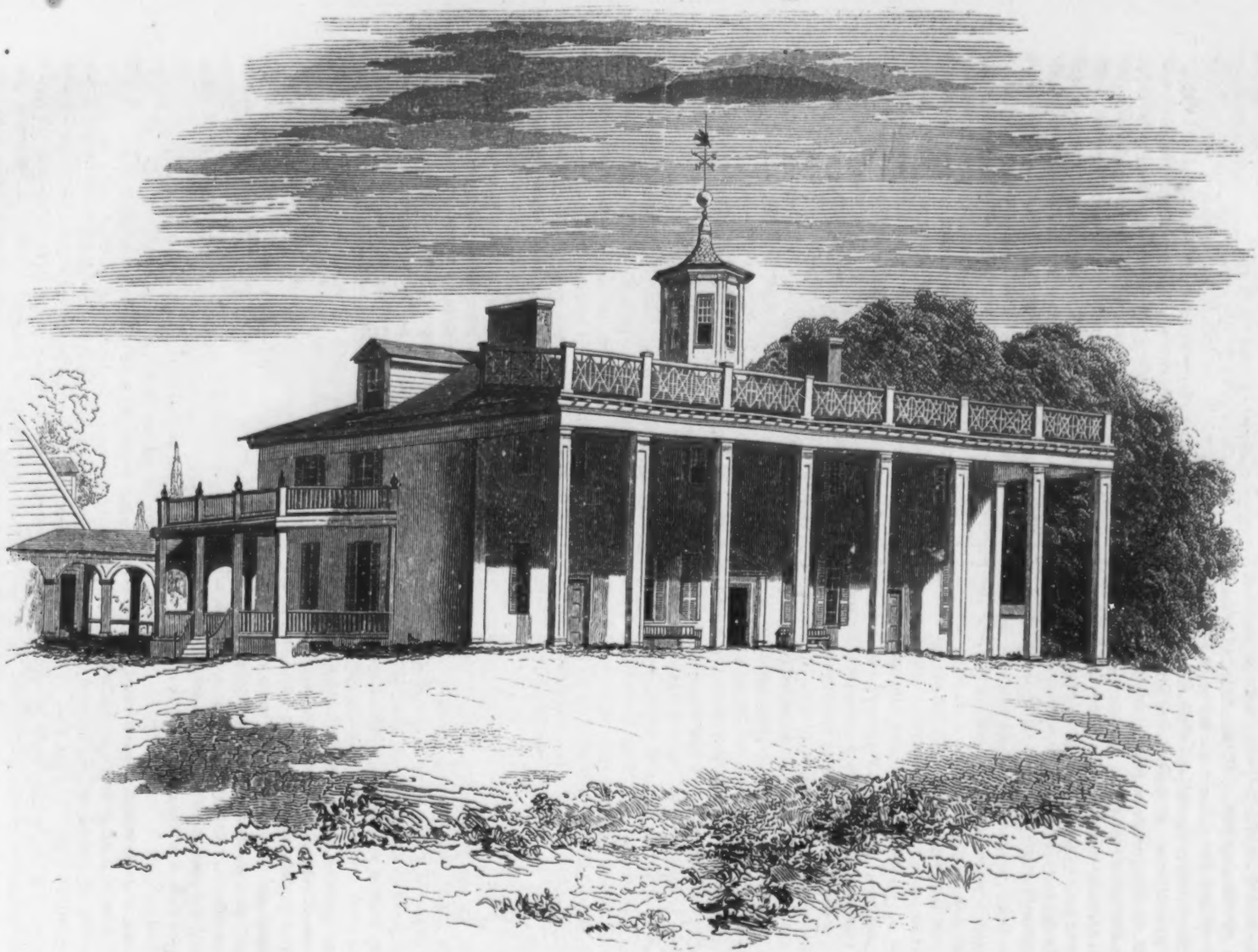
The Desultory Man. By the author of "Richelieu," "Philip Augustus," "The Gipsy," "*One* in a Thousand," &c., in two volumes. New York: Harper and Brothers, 1836. The Desultory Man is not a connected and continuous novel, but rather a series of narrations sometimes grave, sometimes gay, admirably adapted to amuse and instruct, and to refresh the mind of the student after close intellectual labour. Although many of the tales contained in these volumes have already been published in the English periodicals, yet they will be found new by most of our readers.

The Bachelors and other Tales: Founded on American Incidents and other Characters. By Samuel L. Knapp. New York: J. & W. Sanford, 29 Ann st., 1836. Col. Knapp is certainly indefatigable. In a late number of the Family Magazine we gave an extended notice of his edition of Hinton's United States; and this great undertaking is hardly completed, before he is out upon us with another volume. This book embraces nine tales which, as its title informs us, are founded on American incidents and characters: the tales are told in Mr. Knapp's peculiarly interesting manner, with a truth and fidelity of colour too, which shows that his pictures are painted from life. Of the different narratives we prefer "The Intemperate."

The Rambler in Mexico—1834. By Charles Joseph Latrobe. New York: Harper & Brothers, 1836. Encouraged, probably, by the flattering reception of his "*Rambler in North America*," Mr. Latrobe has now issued a brief but graphick account of Mexico—with special regard to the antiquities of that interesting country, and the relicks of a vast and mighty people, about which the interest of the publick has been so much excited. Those readers of the Family Magazine who have been interested in the details in regard to Palenque, published in our journal, will read this book with great pleasure.

The *ninth volume of Paulding's works*, which is just published, contains the "*Diverting History of John Bull and Brother Jonathan.* By Hector Bull-us." This tale, which attracted so much attention on its first publication, has been revised and enlarged. We are glad to see that Mr. Paulding has served up with that keen satire which pervades the whole book, the different English bookmakers, who have overrun our country, and repaid our hospitality and kindness, by mendacious abuse.

A Manual of Anatomy. By J. L. Bayle, translated from the fourth edition of the French, by A. Sidney Doane. A. M., M. D. New York: Harper & Brothers, 1836. We cannot but think that this little manual will be found of great use to medical students and practitioners. Its claims upon their notice are, first, its great portability: it may be carried to the lecture-room or anatomical theatre, in a person's pocket. Then it contains not only a clear and concise description of the different parts of the human body, but the best mode of preparing the subject to see these parts. Thus, under the head of osteology, the form, connexions, structure, and formation of the bones are detailed as fully as the student might wish to know them. In treating of the muscles, we find given, their situation, figure, attachment, relations, direction, structure, and use. The nervous system is described at length, as are also the arterial venous, and lymphatick systems. In fact as the book contains five hundred closely printed pages, there is full opportunity for giving as many facts as are sometimes spun out into two octavo volumes. The work must certainly be saleable.



RESIDENCE OF WASHINGTON, Mount Vernon.

MOUNT VERNON.

THE frontispiece of the present number, represents a view of Mount Vernon. It is from a picture painted on the spot by Mr. J. G. Chapman, and forms the second in the series of "*Residences of the Presidents*," with which we propose to embellish the Family Magazine.

Mt. Vernon is sacred in the eyes of Americans; it is the spot to which many a pilgrim wends his way, anxious to drop a tear at the tomb of the Father of his country.

The following account of a visit to that hallowed place, was published a year or two since:—

"We thought to gallop to Mount Vernon, (from Alexandria,) but the chance of missing the way, and the tiresomeness of a gig, induced us to take a hackney coach. Accordingly, we took magnificent possession, and ordered it on with all convenient despatch. But haste was out of the question—for never was worse road extant than that to Mount Vernon. Still in the season of foliage, it may be a romantick route. As it was, we saw nothing to attract the eye as particularly engaging, save a few seats scattered among the hills, and occupying some picturesque eminences. On we went—and yet onward—through all variety of scenery, hill and vale, meadow and woodland, until a sheet of water began to glimmer through the dim trees, and announce our approach again to the Potomack. In a few moments, a turn in the wild and uneven road brought us in view of the old mansion-house of Washington. We drove to the entrance of the old gate-way, and alighted in the midst of what appeared to be a little village—so numerous and scattered were the buildings. They were of brick, and devoted to the lower menial purposes of the place. As we advanced, the houses that covered the grounds, had a neater appearance, and when we came in view of the edifice of which all these were the outworks or appendages, we were at once struck with the simple beauty of the structure, and the quiet and secluded loveliness of its situation. The roof is crowned with a little cupola or steeple, a common thing upon the old seats of rich proprietors of Virginia—and the building itself is two stories in height. The portion nearest the river and which is fronted with a light piazza, is an addition which was made to the mansion by the general. By this arrangement the beauty of the whole must have been much increased. The style of the work and the painting have the effect of a freestone front, and though there is nothing imposing or grand in the appearance of the house, still there is an air of substance and comfort about it, that after all is far more satisfying than magnificence.

Sending in our cards by an old servant, we were soon invited to enter. Not having letters to Mr. W., the present proprietor, who is now very ill, we did not expect to see any of the family. A servant accordingly, at our request, merely accompanied us through the rooms made interesting by the hallowed associations that came fast upon us as we traversed them. In the hall or entry, hangs, in a glass case, the key of the Castile, which every body has heard of. It was presented to Washington by La Fayette. Under it is a picture of that renowned fortress. The key is by no means formidable for its size; it is about as large as a bank-key, and of a shape by no means mysterious enough for a dissertation. The only curious portion of it is that grasped by the hand in turning. It is solid and of an oval shape, and appeared to me, for I always love to be curious in these matters, to have been broken, on a time, and then soldered or brazen again. It probably had some hard wrenches in its day. On the whole, it appeared to be a very amiable key, and by no means equal to all the turns it must have seen in the Revolution.

We were first shown into a small room, which was set apart as the study of Washington. Here he was wont to transact all his business of state, in his retirement. It was hung with pictures and engravings of revolutionary events, and among the miniatures was one of himself, said to be the best likeness ever taken. Another room was shown us which had nothing remarkable about it, and then we passed into a larger one, finished with great taste, and containing a portrait of Judge Washington. A beautiful organ stood in the corner, and the fireplace was adorned by a mantelpiece of most splendid workmanship in bas-relief. It is of Italian marble, and was presented to Washington by La Fayette. This part of our visit was soon over. There was little to see in the house, and the portions referred to were all to which we were admitted. I could not help admiring, however, the neatness and air of antiquity together, which distinguished the several rooms through which we passed. There was something, also, fanciful in their arrangement, that was quite pleasing to my eye, far more so, than the mathematical exactness and right-angleism of modern and more splendid mansions. I like these old houses and quaint apartments that tell you fantastick tales of their first proprietors, and of their architects; and, as you wander through them, something of the olden time comes upon you, that you would not away with, if you could—or could not, if you would. Passing from the house, down a rude pathway, and then over a little broken but already verdant ground, we came to an open space, and found ourselves standing before the humble tomb of George Washington.* It was a happy moment to visit the spot. There was something in the time, fortunate for the feelings. The very elements seemed in accordance with the season. The day was beautiful—the sunlight was streaming full upon the trees round about and glowing with a mellow beam upon the grave; the place was quiet, and the only sound that we heard save that of our own hearts, was the voice of the wind through the pines, or of the waters as they broke upon the shore below us. Who can analyze his feelings as he stands before that sepulchre? Who can tell the story of his associations, or do justice by his tongue or his pen to the emotions which the memories of the past awaken there! The history of a whole country is overpowering him at once. Its struggle—its darkness—its despair—its victory rush upon him. Its gratitude, its glory, and its loss, pass before him—and in a few moments he lives through an age of interest and wonder. Strange power of the human mind! What an intimation does this rapid communion with the past, and with the spirits of the past, give, at once, of their immortality and our own! But it is

* See a view of the "Tomb of Washington," on page 361, of the volume for 1836.

vain to follow out these feelings here. They would fill volumes.

There is no inscription on the tomb. The simple words, "WASHINGTON FAMILY," chiseled in granite, surmount the plain brickwork. The door is well secured, and of iron. There is a total absence of every thing like parade or circumstance about the resting-place of the Hero and Father. He sleeps there in the midst of the simplicities of nature. Cypress-trees wave over his dust on every side, and the traveller, who goes to stand by his grave, finds no careful enclosure to forbid his too near approach.*

NAVAL REMINISCENCE.

AN anecdote, relating to the capture of the Guerriere, has lately gone the rounds of the papers, which is stated to have been from an unquestionable source, and characteristick of the coolness, prudence, and superiour skill, of the gallant American commander. The anecdote is doubtless correct in each important particular, although we have often heard it related with some additions and slight variations, by a person who was on board the Constitution when the occurrence took place. His version was as follows:—

The Guerriere was lying too. The Constitution was leisurely bearing down upon the enemy under three topsails—every man was at his respective station, and all on board, were eager for the contest—when the Guerriere commenced the action at long-shot. Commodore Hull gave a peremptory order to his officers not to apply a single match until he gave the word. In a few minutes, a forty-two pounder from the Guerriere took effect, and killed and wounded some of our brave tars. Lieut. Morris immediately left his station on the gundeck to report the same to the commodore—and requested permission to return the fire, as the men were very desirous to engage the enemy. "Mr. Morris," was the commodore's reply, "are you ready for action on the gundeck?"

"Yes, sir."

"Well, keep so; but don't let a gun be fired till I give the word."

In a few minutes Mr. Morris again appeared, and stated that he could with difficulty restrain the men from giving a broadside, so anxious were they to commence the engagement.

"Mr. Morris," reiterated the commodore, intently gazing on the English frigate, "are you ready for action on the gundeck?"

"Yes, sir—and it is impossible for me any longer to restrain the men from firing on the foe. Their passions are wrought up to the highest possible pitch of excitement. Several of our bravest seamen are already killed or wounded."

"Keep cool, Mr. Morris, keep cool. See all prepared, and do not suffer a gun to be fired till I give the word."

The gallant lieutenant went below. In a few moments, the vessels having neared each other, to within pistol-shot distance, Morris was sent for to appear on the quarter-deck.

"Are you all ready for action, Mr Morris?" again demanded the commodore.

"We are all ready, sir—and the men muttering horrid imprecations because they are not suffered to return the fire of the enemy."

"Fire, then, in God's name!" shouted the commodore, in a voice of thunder. It is added that he wore at the time a pair of nankeen tights—and he accompanied his soul-cheering order with such a tremendous stamp on the deck, with his right foot, that the unfortunate pantaloons were completely split open from the knee to the waistband.

The conduct of Dacres, before and during the action, was such as might be expected from a brave and generous enemy. Mr. Reed, a young man belonging to Brewster, Mass., at present a respectable ship master out of Boston, had been pressed on board the Guerriere a few weeks previous to the engagement. Several other American seamen were also on board. When the Constitution was bearing down in such gallant style, and it became evident that a severe action with an American frigate was inevitable, young Reed left his station and proceeded to the quarter-deck, and respectfully, but firmly represented to Capt. Dacres, that he was an American citizen, who had been unjustly detained on board the English frigate; that he had hitherto faithfully performed the duties which were assigned him, but that it could not reasonably be expected that he would fight against his countrymen—he therefore begged leave to decline the honour of participating in the engagement.

The English captain frankly told him that he appreciated his patriotick feelings; that he did not wish the Americans on board to use arms against their countrymen; and he subsequently ordered them all into the cockpit to render assistance to the surgeons if it should be necessary. Reed left the spar-deck of the Guerriere and the action commenced. Several shots were known to have taken effect, but the Constitution had not yet fired a gun—much to the amazement of the British tars, who predicted that the enemy would be taken without any resistance, with the exception of a veteran man-of-war's man, who was in the battle of the Nile, and gruffly observed, with a significant shake of his head: "The d——d Yankee knows what he's about."

A few moments passed away, and the Constitution poured in her tremendous broadside; every gun was double-shotted and well-pointed; and the effect which it had on the enemy can hardly be conceived. Mistimed jests and jeers at the imperturbable, but harmless Yankee, gave place to the groans of the wounded and dying; and sixteen mutilated wretches were tumbled down into the cockpit, from the effects of the first discharge!

Dacres fought as long as a spar was standing, and a gun could be brought to bear on the enemy, but when his masts were completely swept away, his officers and men mostly killed and wounded, encumbering the decks; while the scuppers were streaming with gore; when the Guerriere, which a few hours before, was considered one of the most splendid specimens of naval architecture, which belonged to the British navy, lay on the water an unsightly, unmanageable mass—when he had no longer the stump of a mast left from which to display the proud flag of his country, the gallant Briton began to think

* The tomb has been enclosed since this letter was written.

that he had got into an ugly scrape, from which he could not possibly extricate himself. He could no longer oppose even a feeble resistance, to his more fortunate foe.

Captain Hull sent an officer to take possession of the Gurriere. When he arrived alongside, he demanded of the commander of the English frigate, if he had struck.

Dacres was extremely reluctant to make this concession in plain terms, but with a shrewdness which would have done honour to a Yankee, endeavoured to evade the question.

"I do not know that it would be prudent to continue the engagement any longer."

"Do I understand you to say that you have struck?" inquired the American lieutenant.

"Not precisely," returned Dacres, "but I don't know that it would be worth while to fight any longer."

"If you think it advisable, I will return aboard," replied the Yankee, "and we will resume the engagement."

"Why, I am pretty much hors du combat," said Dacres—"I have hardly men enough left to work a gun, and my ship is in a sinking condition."

"I wish to know, sir," peremptorily demanded the American officer, "whither I am to consider you a prisoner of war, or an enemy? I have no further time for parley."

"I believe there is now no alternative—if I could fight longer I would with pleasure—but I must—surrender—myself—a prisoner of war."

REVOLUTIONARY ANECDOTES.

JOHN HANCOCK.

During the siege at Boston, General Washington consulted Congress upon the propriety of bombarding the town of Boston. Mr. Hancock was then President of Congress. After General Washington's letter was read, a solemn silence ensued. This was broken by a member, making a motion that the house should resolve itself into a committee of the whole, in order that Mr. Hancock might give his opinion upon the important subject, as he was deeply interested from having all his estate at Boston. After he left the chair, he addressed the chairman of the committee of the whole, in the following words: "It is true, sir, nearly all the property I have in the world, is in houses and other real estate in the town of Boston; but if the expulsion of the British army from it, and the liberties of our country, require their being burnt to ashes—ISSUE THE ORDER FOR THAT PURPOSE IMMEDIATELY."

General Putnam.—During the war in Canada, between the French and English, when General Amherst was marching across the country to Canada, the army coming to one of the lakes which they were obliged to pass, found the French had an armed vessel of twelve guns upon it. The general was in great distress; his boats were no match for her, and she alone was capable of sinking his whole army, in the situation in which it was placed. General Putnam came to him and said. "General, that ship must be taken." "Ay," said Amherst, "I would give the world, if she was taken." "I will take her," says Putnam. Amherst smiled, and asked how? "Give me some wedges, a beetle, (a large wooden hammer or mallet, used for driving wedges) and a few men of my own choice." Amherst could not conceive how an armed vessel was to be taken by a few men, a beetle and wedges. However, he granted Putnam's request. When night came, Putnam, with his materials and men, stole quietly in a boat under the vessel's stern, and in an instant drove in the wedges behind the rudder, in the little cavity between the rudder and the ship, and left her. In the morning the sails were seen fluttering about, she was adrift in the middle of the lake, and being presently blown ashore, she was easily taken.

THE MUSICIAN'S LAST HOUR.

BY PARK BENJAMIN.

The good old man lay dying. Soft and cool
Played the light summer breeze among the leaves
Of a deep foliaged tree, that cast its shade
Into the window of his quiet room.
It made a rustling whisper like the hush
Of a fond mother o'er her sleeping babe.
And all were still—yet many friends were there,
Who oft had hung enchanted, on the sounds
Flowing from those pale lips, springing like thought
Beneath the touch of those thin stirless fingers.
He slept—how calm! and oh! methinks he dreamed!
He dreamed of starry musick—of the spheres
Making rich harmony—of seraphs' harps,
Thrilling and trembling to the heavenly plumes
That fanned their golden wires. He heard the song
Of cherubim, symphonious, faint and low;
For soft he smiled, and seemed intent to hear—
He heard the choir of angels, loud and full,
Pouring a flood of musick; for he stirred
With restless fervour, and his eyelids rose.
'Twas but the breeze disquieting his slumber—
Throwing the branches of the leafy tree
Against the lattice—freshening as the ray
Of sunset deepened. Its first, low-sounding tones
Had mingled with his fancy, and he dreamed
Of gentle cadence: when it louder swelled
He heard the angel chorus, and awoke!

Turning his feeble gaze upon the forms
That stood around, subdued to breathless awe,
He seemed to seek for some dear countenance.
The inquiring look was answered—for a girl,
As lovely as the seraph of his dream,
With voice as charming, to his pillow leaned
And sobbed: "What wilt thou with me, oh! my father?"
"I'm dying, Ella, dying! play an air
Upon thy harp—its chords I would hear thrill
With the deep musick which I taught and loved,
And still love next to thee, mine own, and Heaven!"
The maiden went, and with a faltering step
Approached her harp. She lightly touched the strings,
Prelusive to some strain, as sad and solemn
As the lone swan's first but last warbled song.
Sudden the old man rose. His dim eye lightened;
His hands he threw as if in rapid flight,
Across the chords, and clearly spoke—"Not so!
Not so! my daughter—not a mournful theme;
For I would triumph over Death, and soar
Victorious as a conqueror to his throne!
Be it a *martial air!*"
The maiden paused
A moment only; for new courage flashed
O'er her bright brow—and Inspiration, caught
From her great father's spirit, gave her power
To sweep the chords with firm and brilliant hand.
She played a Triumph, such as Miriam sung,
When Israel's rescued armies passed the sea!

The sunset's latest beams streamed broadly in
Upon the old man's couch. His visage shone
As if the portals of the sky were thrown
Apart before his sway. The harp still flung
Majestick musick on his raptured ear;
And with the utterance of a mighty strain,
He fell upon his pillow—and was still!
His soul had floated on that wave of sound
To Heaven!

[Portrait of the Wolf.]

THE WOLF.

It is a trite remark that we read details of battles, in which thousands have fallen, with little emotion, while individual griefs powerfully affect us. The same remark holds good with regard to any general catastrophe; and why is this? Because we cannot realize the horrors attendant on such scenes. Private sorrow comes home to our own hearts; we remember those who are in adversity, as being ourselves the children of affliction. The following anecdote may illustrate the truth of this position :—

The father of Maria ——— was rich only in virtues: he left no inheritance to his daughter but some old furniture, and a little cottage situated on the skirts of a deep wood. Maria retired with her brother to this wild asylum; she had neither relations nor friends, and was soon reduced to abject poverty. Some neighbouring husbandmen would have employed her to keep their geese and sheep, but her tender attachment to her brother prevented her from accepting the office; and she determined to endure any hardship rather than abandon him.

In this urgent necessity she sold some linen and other articles; purchased flax, and employed herself in spinning, sewing, and knitting alternately. As she was not less active than skilful, she thus provided for her support, and preserved her independence.

Activity industry, and virtue, naturally command esteem. A girl of twelve years old, living alone in a poor cottage, maintaining herself, and taking care of an infant brother, was a sight equally rare and affecting. Accordingly, her reputation spread abroad; mothers brought their children to profit by her example; and plenty, the ordinary fruit of industry and activity, soon began to reign in the cottage of Maria. She even found herself able to engage a good old woman to live with her, who managed her

brother, while she went to carry her work to the neighbouring villages.

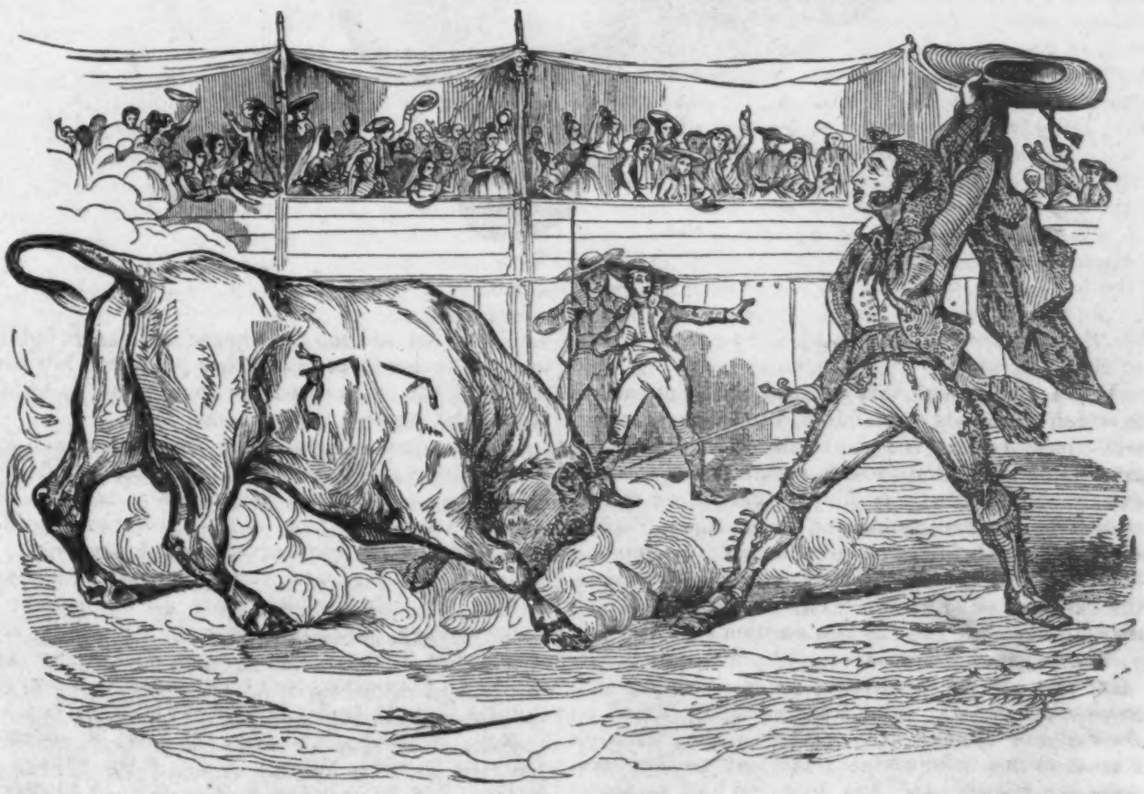
Thus plentifully, and tranquilly, did Maria pass her days, when, as winter drew on, troops of hungry wolves began to lay the country waste. They wandered through the fields in herds, boldly entered the towns, and even unarmed men became their victims. One morning, as the amiable girl was employed in drawing bread from the oven, a she-wolf, followed by five cubs, burst into the room. She immediately seized a knotty stick, and defended herself with equal courage and calmness. In this she would have succeeded, had she thought only of her own safety; but, while she was dealing violent blows to the savage beast, she perceived a second enemy advancing towards her brother. Uttering a cry of terror, she seized the child, opened a closet, and placed him under cover from all danger; but while the courageous girl supported herself with one hand, and endeavoured with the other to repulse the voracious animals, the furious wolf sprang at her throat, and instantly suffocated her. The poor old woman, flying in dismay to obtain assistance, was also seized and torn in pieces.

Thus died, in her fifteenth year, this exemplary young person, who so well deserved a better fate. Her brother was living in 1796, and from him these interesting particulars were obtained. Howitt.

BULLFIGHTS.

The bullfights of Spain and Mexico, are no less curious in their details, than the combats of men and animals which formerly took place in the amphitheatres of the ancients: and although they are now turned to account, in a political point of view, yet the circus, is always crowded by females and males of every rank and condition.

These contests have their rules and laws, like the modern duels between *gentlemen of honour*; they take place in different modes; the *toreadors*, or those who contend with the bull, are on horseback, or on foot; and are sometimes armed, and sometimes unarmed. In the former case, several cavaliers, armed with a long lance, are arranged in a line, one behind another, their eyes fixed on a gate at one entrance of the arena. The gate opens, and in rushes the bull, furious from his confinement and from the tortures to which he is subjected: arrived in the arena, he stops, paws up the ground with his feet, lashes his tail, and rushes impetuously with his head downward upon the first cavalier. The latter, on seeing the approach of the bull, urges his horse into a gallop, and at the same time breaks his lance from behind forward in the neck of the bull. The animal smarting from the wound, and enraged at missing his blow, then proceeds to the next cavalier who is immediately attacked; imitating the example of his comrade, the unfortunate animal receives from him a second wound. This unequal contest continues until the bull, exhausted by pain and loss of blood, falls dead on the arena. Sometimes, however, the result is different: and if the cavalier commit the slightest error at the critical moment, his horse is overthrown by the horn of the animal; and then, instigated by the fear of losing his reputation and honour, the discomfited cavalier contends with the animal on foot and kills him. During this contest, the spectators watch every motion of the combatants, and give those credit, to whom credit is due,



[Spanish bullfight.]

"*Bravo, bull!*" and "*Bravo, cavalier!*" resound from all parts of the amphitheatre.

When the toreador is on foot, the chances seem more equal: in this case the man is armed with a sword, and holds in his hand a staff to which a small red flag is attached: the bull on seeing the red flag, throws himself upon it and not on the man, and the toreador might easily finish the contest by plunging his steel into the throat of the animal, but to show that he has no fears in regard to continuing the contest, he again takes his position in front of the animal and provokes him with the flag, and the fight is not terminated, till after several successive attacks. Sometimes the toreador does not allow the bull to waste his strength with impunity on the banner, but catching his opportunity, places one foot upon the neck of the animal, as he bends his head down previous to an attack, and jumps over him, a feat which is greatly applauded by the spectators. Most frequently the bull continues the game as long as is desired, but sometimes finding his efforts useless, refuses to engage: in this case, neither the provocations and insults of the toreador, nor the bitter clamours of the speculators, can disturb the peaceable resolution of the animal. But his fate is only hastened: for when all efforts to inspire the bull with courage fail, the irritated populace pronounce his decree; and cries of "*Death! death!*" are heard on all sides. The sentence is soon executed; the toreador, after bowing respectfully to the galleries, plunges his sword into the bull's throat, who stands for a moment, and then falls dead.

Sometimes, the toreadors contend unarmed: in this case, about a dozen of them fall upon the animal on all sides, and taking hold of his horns, legs, and tail, pull him to the ground. This, however, is dangerous sport, and the assailants rarely escape without severe injuries. There are several other forms of contests: we shall only mention that where the battle is between a bull and a single toreador, who, however, is provided with a cask in which he takes refuge on the approach of the bull, who strikes it with his horn, raises it in the air and rolls it before him. One stab with a short sword in the heart of the animal, terminates the contest, when the publick are satisfied with this amusement.

Sometimes, balls of wood are attached to the horns of the bull, and the lances of the toreadors in this case have no points. For these harmless amusements, however, the populace have no taste. They are satisfied only with blood. At the annual bullfights, the sports are not complete till a dozen bulls have perished, and perhaps some heroes and toreadors. On these occasions, every place in the vast amphitheatres, which are built to accommodate several thousands, is occupied.

Lieutenant Slidell, in his "Year in Spain," thus describes the termination of a bullfight:—

The man who now entered the lists at the sound of the trumpet was no other than the principal matadore of Spain, Manuel Romero by name. He was a short man, extremely well made, though inclining to corpulence, with small regular features, a keen, sure eye, and such an air of cold-blooded ferocity as became one whose business it was to incur danger and to deal death. The dress of Romero was that of a majo, covered with more than the usual quantity of lace and embroidery; his hair, combed backward and platted into a flat queue, was surmounted by a black cocked-hat. In his left hand, he held a sword, hidden in the folds of a banner which was fastened to a short staff. The colour of this banner was red, deepened here and there into a deadlier die, where it had been used after former combats to wipe the sword of the matadore. It was to him at once a trophy and a buckler, as with the warriours of old, who carried their achievements emblazoned on their shield.

Romero did not enter with the air of one who knew his own force and despised his adversary; nor as though he had to hide a faint heart under a careless brow; but with a fearless, determined, yet quiet step. Having approached the box of the corregidor, he took off his hat and made a low obeisance; then returned the salutations which greeted him from the whole circuit of the amphitheatre. This done, he threw his hat away, brushed back a few hairs which had escaped from the platting of his queue, stretched his limbs to ease the elastick tightness of his costume, and then taking his well-tried blade from beside the banner, he displayed a long straight Tolepano, such as was once worn by cavaliers and crusaders.

Meantime, the chulos were occupied in running before the bull, and waving their cloaks in his eyes, in order to excite the last fit of ferocity, which was to facilitate his own destruction. In this way, the bull was enticed towards the spot where the matadore awaited him. The latter, holding out the banner, allowed the animal to rush against it, seemingly astonished at its little opposition. This was twice repeated; but the third time, the matadore held the banner projecting across his body, while with his right hand extended over the top, he poised and directed the sword. Here is the last and most interesting moment of the whole contest; the multitude once more rise upon the benches. All eyes meet upon the glittering point of the weapon. The bull now makes his final career; the banner again gives way before him; his horns pass closely beneath the extended arm of the matadore, but the sword which he held a moment before is no longer seen; it has entered full length beside the shoulder of the bull, and the cross at the hilt is alone conspicuous.

Having received his death-blow, it is usual for the bull to fly bellowing to the extremity of the arena, and there fall and die. But the animal which had this day sustained the contest so nobly, was courageous to the last. He continued to rush again and again with blind fury at the matadore, who each time received the blow on his deceptive buckler, laughed scornfully at the impotent rage of his victim, and talked to him jestingly. The admiration of the audience was now complete, and cries, whistling, and the cloud of dust which rose from the trampled benches, mingled with the clang of trumpets to proclaim the triumph of the matadore.

A few more impotent attacks of the bull, and his strength began to pass away with the blood, which flowed fast from his wound, spread itself over his shoulder, and ran down his leg to sprinkle the dust of the arena. At length, he could no longer advance; the motion of his head became tremulous and unsteady; he bowed to his fate, paused a moment upon his knees, and then, with a low moan, settled upon the ground. At this moment, a vulgar murderer

came from behind the barrier, where he had hitherto remained in security. He caught the animal by the left horn, then aiming a certain blow with a short wide dagger, he drove it deep into the spine. A convulsive shudder for a moment thrilled over the whole frame of the victim, and his torments were at an end.

At this moment, the gates on the right were thrown open, and three mules rushed in, harnessed abreast, and covered with bells, flags, and feathers. Their driver hastened to fasten a strap round the horns of the dead bull, and dragged him to where lay the carcasses of the two horses. Having tied a rope about the three necks, he lashed his team into a gallop, and the impatient beasts stirred up a cloud of dust, and left a wide track to mark the course which had been passed over by the conqueror and the conquered.

HOUSEHOLD DUTIES AND OPERATIONS.

WHATEVER arrangement the young housekeeper may make for keeping her accounts, we would urge most strongly the advantage of regularly, every week, paying her tradesmen's bills. On no account let her, if she would be a good economist, suffer them to remain unpaid for a longer period. Every thing will then be fresh in her memory, and she will be able to keep constantly before her the amount of her expenses, and thus save herself the misery of self-reproach. She will find it a good plan to have a book for each of her tradespeople, in which she may write her orders; and, the price being carried out, the book should be returned with the articles. The amount may be cast up every week, and settled.

There is perhaps nothing which forms so deceptive an item in the expenses of housekeeping as wine; and if any one will just calculate the cost, in the course of a year, of four glasses a day, the amount will appear almost startling. It is, most generally, a habit injurious to health, and destructive to the economy of time; and were the money, which is so often thus thoughtlessly expended, devoted to the enjoyments of a family, how much rational and useful recreation might be procured. This applies only when the expense is no part of the objection, but when the income is limited the habit becomes a sin. Let us recommend the use of a *cellar-book*, in which an account may be kept of the different wines received into the cellar from time to time, and of every bottle taken from it, with a memorandum of the particular purpose for which it was required. If carefully and strictly kept, it will soon teach its lesson. The form of such a book may be varied in many ways, but should it be requested, we will give a form which is most familiar to us, in our next number.

Where the washing is put out of the house, as happens in many families, in cases of slops of gravy, &c., on the table-linen, directions should be given for having them immediately washed out, even when not again to come to table, otherwise the marks will not be entirely got rid of for several washings, (without the help of bleaching-liquid, the use of which injures linen;) and a stained table-cloth can never look clean.

The following will be found an excellent method of washing, for families particularly when they are large:—

Put the clothes over night in tubs of cold water; the following day make a mixture as follows:—One pint of limewater, eight gallons of soft water, one ounce of scraped soap, and one ounce of soda. Put these into a boiler with the clothes. After they begin to boil, let them continue to do so for half an hour; then take them out, and "peggy" them *well* in soft water; then wring them out, and rinse them very thoroughly. To make the limewater, put half a pound of quicklime to one gallon of water; break it up, and stir it thoroughly; then let it remain till quite clear. This solution does not answer for flannels. The suds from the boiler will do to wash prints, &c., &c.—The above makes the clothes as white as possible, and is a very economical plan. In order to wash and get up muslin particularly clear, a little isinglass should be used instead of starch; when dissolved it must be strained.

The best way of keeping sheets is to *fold* them *flat* in pairs, and lay them on shelves, one pair above another, and the fine and coarse in separate piles. A closet or cupboard, with shelves, should, in large families, be appropriated to the purpose of keeping the linen, (being far better than the oldfashioned *chest*;) for, when each division is *ticketed* with the article and number it ought to contain, the whole comes immediately under the eye, which facilitates the necessary operation of *counting* after each washing: in large establishments this requires particularity and attention. When extra bedding comes from the wash, the linings (if any) should be tacked in, and all the pieces be carefully pinned up together and ticketed, so that, when any particular bed is wanted, it may not be necessary to open half a dozen to find it. All pieces and remnants of furniture should be kept together in an accessible place, ready for repairs. During the summer months, ticking of feather-beds, bolsters, and mattresses, should be frequently beaten and dusted, especially where the ticks are of cotton, otherwise they become very full of dust, and when shaken in making, fill the room with dust also.

A cook should always be supplied with a piece of floor-cloth to put at the end of her kitchen-table, in order to keep it clean, as the dirt and grease from saucepans is more easily removed from floor-cloth than from wood; little round mats, about an inch thick, and the size of a common plate, made of platted straw, with a straw ring by which they may be hung up, are very useful during the process of cooking, to place under the stewpans and saucepans, when it is necessary to put them on the table.

In large establishments, *each* servant should be furnished with brushes, pails, and whatever is requisite in her department, for her use *solely*; this prevents grumbling among servants; and in case of *misuse* or *disappearance*, blame will fall on the proper individual. It is astonishing how much confusion and discomfort may be avoided by attention to these trifles.

A mistress should provide her *housemaid* with a pair of strong gloves and a large coarse apron to clean her grates, &c., &c., which enables her to keep herself fit to be seen if called away in a hurry.

It is a good plan to give out on Saturday or Monday morning to each servant the quantity of

soap allowed for the week's consumption, as also of tea and sugar. Of the two latter a reasonable quantity is three ounces of tea and three quarters of a pound of loaf-sugar, or one pound of moist, and half a pound of butter. Calculating by this allowance, a pretty correct estimate of what should be the week's expenditure may be made, varying occasionally with circumstances. Regularity and punctuality are paramount qualifications in domestick management.

All orders should be given to servants in as few words as possible, with decision and gentleness, never varying (unless in particular circumstances) or breaking a promise, otherwise they will learn to disregard orders and become disrespectful.

It is a good plan always to give the cook a bill of fare when dinner is ordered, to prevent the possibility of mistakes and omissions, and this may be best done by keeping a small slate hanging in some appropriate place with a bit of sponge and a pencil attached to it. When families reside in the country, and have an opportunity of sending to a town only once or twice a week, it is quite necessary to keep a good-sized slate in an accessible place, in order that every member of the family may, when sensible of a want, make a memorandum of it at once, and thus avoid the discomfort of having forgotten something (perhaps of importance) a few minutes after the messenger is despatched.

A good housewife always keeps a memorandum-book and pencil in her pocket, in case she should meet with any information worth recording.

In the proper season, potherbs should be gathered in, and the successive crops of camomile flowers, taking care to do it always in *dry* weather; put them when dry into paper bags to preserve from dust and cobwebs.

When fruit is very plentiful, it may be preserved for winter use by boiling it with a *small* quantity of sugar for a *long* time; and it comes in very usefully and economically for puddings in farm-houses or large establishments of servants.

Butter should also be potted down for winter use; this is the the season for laying in a stock of honey.

Towards the end of the month, jam, gelly, &c., made in July, should be examined, and if there appears any tendency to fermentation, it must be reboiled and fresh prepared: there is much more trouble on this head during some seasons than others. Hams should be examined, to see if they are safe at the bone, which is done by sticking a clean knife into them in the direction of the bone, and the appearance and smell of the knife afford the means of judging of their condition; if it is not quite as it should be, have it separated at the bone immediately, as it is possible that the taint may not have affected the whole ham.

It is a good plan to prepare crockery and glass which will be used to hold hot water, by boiling it, which is effected by putting the articles into a kettle of cold water over the fire, letting them just boil, then taking the kettle off, and allowing them to remain in the water till cold. You should be very careful also, when about to pour hot water into vessels of glass and crockery, always to do this gradually, and if possible to warm them, before they are used for this purpose; much breakage may thus be prevented.

SURPRISING EFFECTS OF CAMPHOR ON VEGETABLES.

The stimulant effects of camphor upon the human and some other animal bodies, are well known; but those on vegetables are not only new, but astonishing in their nature. A piece of the woody stem of the tulip-tree, with one flower, and two leaves, taken out of a pot of water, containing several other flowers of the same plant, all to appearance in the same state, was placed in eight ounces of water, which had been stirred up for some time with one scruple of good camphor. In a little while, an unusually lively appearance became remarkable in the flower in the camphor; while the others, though they had the benefit of a larger quantity of water, were sensibly drooping. The two leaves first considerably elevated themselves upon their footstalks, the flower expanded, more than in a natural state; the stamina orchives receded from the pistillum; and the three leaves of the calix, or flower-cup, were remarkably reflected back, and grew extremely rigid and elastick. The internal surface of the petals of the flower perspired considerably, though a similar perspiration could not be perceived in the flowers of the same plant in the same room and temperature.

The camphorated plant continued in a very invigorated state for two whole days, after which it began to droop; but the leaves drooped and decayed sooner than the flower. The other flowers and leaves of the tulip-tree left in simple water did not live more than half as long as that in the water impregnated with camphor. Notwithstanding these surprising effects, no odour of camphor could be traced in any part of the branch, except what was immersed in the fluid. This circumstance seems to render it probable that the camphor was not absorbed by the plant, but that it exerted its remarkable influence entirely through the solids to which it was immediately applied. The appearance, however was very striking, and might be compared with the beneficial effects of opium on the human constitution.

Several other experiments were made with camphor on plants, in all of which it was very evident that camphor operated as a powerful and wholesome stimulant. A stalk of yellow iris, with one expanded flower, was taken out of a vial of water, in which it had been placed more than a day. The flower had commenced drooping; but a very few minutes after being put in a vial of the same size, containing a few grains of camphire, it began to revive, and continued in a vigorous state for many hours. As camphor is but very sparingly soluble in water, it is natural to conclude that the stimulant effects were produced by a very small part of the quantity mingled with water.

This discovery might induce us to make experiments with camphor as a manure, if the expense of trying them on a scale sufficiently large, were not excessive. But still, we may apply the camphor in the manner before mentioned; and can that be termed a useless purpose? A few grains of camphor, acting as a cordial, will revive a drooping plant, increase its beauty, and prolong its existence. In the eye of the florist these are objects not of mean importance. All those who are fond of flowers, and whose opportunities for procuring them are rare, will be pleased to have the power of prolonging their existence by this simple mode.

NATURAL HISTORY.

[Lammergeyer.]

LAMMERGEYER, OR VULTURE OF THE ALPS.

THE bird represented above is one of the largest of the feathered race, and one of the most remarkable of the class to which it belongs. Vultures are nearly allied to the eagles in point of size and some of their habits; they yet differ from them considerably in others: generally speaking, they may be easily distinguished by the head and part of the neck being either quite naked, or covered with a short down. Instead of ranging over hill and valley in pursuit of living game, they confine their search to dead and putrefying carcasses, which they prefer; and justly merit, by the voracity with which they devour the most offensive carrion, the name of scavengers, in some countries, where they are never destroyed, in consequence of the good they do, by consuming the bodies of animals that might, but for the assistance of the vultures, breed a pestilence in the hot climates where they most abound. A traveller in Africa, having killed two buffaloes, and directed his party to cut them up piecemeal, and hang the various joints on the branches round their tents, that they might be dried up under the scorching beams of a burning sun, found himself suddenly surrounded by a flight of these birds, who actually carried off the flesh, notwithstanding the efforts made to drive away or destroy them by shouting, throwing, and even shooting at them. As fast as one dropped, others supplied his place. Another English traveller, who marched for some days with an army in Abyssinia, in a different part of Africa,

speaks of their numbers as to be compared to the sand of the sea, extending over the troops like a black cloud; they were also more courageous than some other species, for he once saw one strike an eagle to the ground, which had accidentally straggled into a host of vultures, assembled to feed on the dead soon after a battle.

They are, however, sometimes more dainty in their choice of food; as in Egypt, where, during the season when crocodiles and alligators lay their eggs in the sand, these cunning birds will sit, hid in the leaves of the trees, watching the females coming on shore to lay their eggs, which, when laid, they cover carefully with sand, thinking, no doubt, that they are thus safe from all danger, and sure to be hatched in regular course of time, by the warmth of the soil, heated as it is by the sun; but no sooner does she retire, than the concealed birds glide down, and with claws, wings, and beak, tear away the sand, and quickly devour the hidden treasures.

Naturalists are a good deal divided as to the faculty by which these birds are enabled to discover, in a most surprising manner, a dead or dying animal at the distance of even many miles.

In travelling over the immensely wide deserts of Africa, where there is not a blade of grass to tempt a living bird or animal, and no inducement, therefore, for birds of prey to scour those vast wildernesses in search of game, should a camel or other beast of burden drop under its load, in the train of a caravan, in less than half an hour there will be seen, high in the air, a number of the smallest specks, moving slowly round in circles, and gradually growing larger and larger as they descend in spiral windings toward the earth; these are the vultures, but whence they come, or by what sign, or call, they are collected at a height beyond the reach of the human eye, is still a mystery; though we are much inclined to suspect that they derive their information from an inconceivable keenness of sight, rather than as some suppose, from an extraordinary sense of smelling, which has been attributed to them. When within a few yards, the spiral motion is changed for a direct line, they then alight on the body, and tearing it in pieces, feed upon it with greediness.

Some idea, indeed, may be formed of their voracity, when we are assured that, at one meal, a vulture contrived to devour the whole body, bones and all, of an albatross.

The natives of South America avail themselves of the gluttonous greediness of this bird to catch it. A dead carcass of a cow or horse is laid out for a bait, on which they gorge themselves to such a degree that they become quite drowsy and stupid. When in this plight, they are approached by the Indians, who easily throw a noose over them; on finding themselves prisoners they are usually, for a time, sullen and shy; but this is not always the case, as the following story will prove, related by Captain Head, and told to him by one of his attendants:—

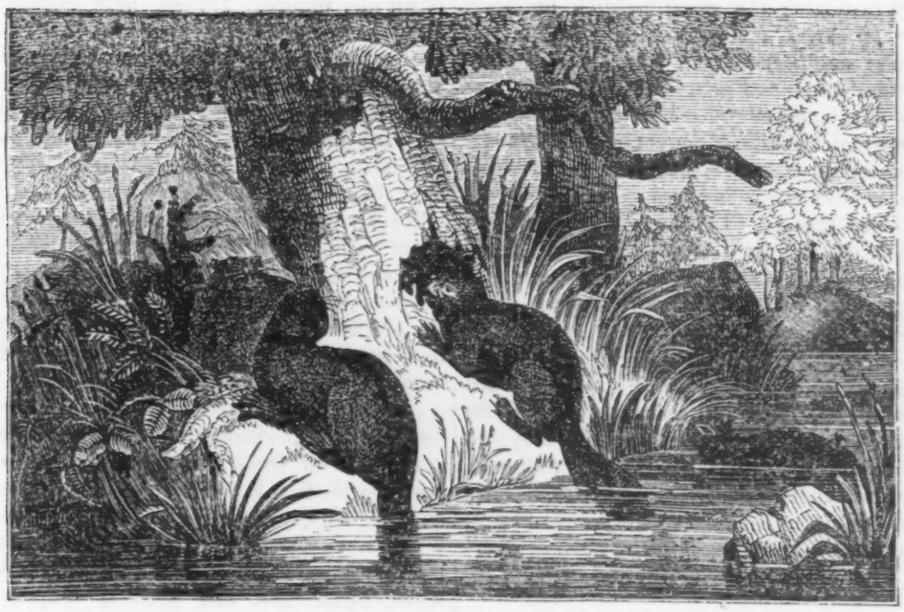
"The man, when riding along the plains, saw several condors, or largest-sized vultures, and guessing that they were attracted by some dead animal, rode up, and found a numerous flock round the carcass of a horse. One of the largest was standing with one foot on the ground, and the other in the horse's body, exhibiting a singular force of muscular power, as he lifted the flesh, and tore off great pieces, sometimes shaking his head, and pulling with his beak, or sometimes pushing with his leg.

"As the man approached, one of them, which appeared to be gorged, rose up, and flew about fifty yards off, when it alighted, and he rode up to it, and then jumped down, seized the bird by the neck. The contest was severe, and never probably was such a battle seen before. The man declared he never had had such a trial of strength in his life, that he put his knee upon the bird's breast, and tried with all his might to twist its neck, but that the condor, objecting to this, struggled most violently, and he fully expected that several others, which were flying over his head, would take part against him, and assist their companion. At length however, he succeeded, as he supposed, and carrying off the pinion-quills in triumph, left the bird for dead; but so tenacious are they of life, and so difficult to kill, that another horseman who passed the spot sometime after, found it still living and struggling."

THE BEAVER.

These indefatigable creatures generally prefer the margin of lakes and rivers, though occasionally residing on the coast, or rather on such gulfs as receive a large body of fresh water, and are consequently less saline than the open sea. Those who traverse the banks of the Canadian rivers, or the northern parts of Asia, may observe the beavers beginning to assemble in great numbers, during the months of June or July, for the purpose of establishing a commonwealth. The place of rendezvous is commonly the station fixed for this purpose. If verging on a lake, of which the waters rise above their ordinary level, the skilful engineers do not erect a dam; if beside a brook or river, where the waters alternately fall or rise, they throw up a bank, and thus construct a reservoir, which uniformly remains at the same height. This bank, which resembles a sluice, and is frequently from eighty to one hundred feet in length, by ten or twelve wide at the base, is even more astonishing with regard to its solidity than its magnitude. For the purpose of constructing it, they select a shallow part of the brook or river; and if they find on the margin a large tree, so situated as readily to fall into the water, they begin to cut it down. But how, it may be asked, is this effected? Their fore-teeth answer the purpose of a woodcutter's hatchet, and they begin the work of felling at a foot and a half above the ground: while thus employed, the labourers assume a sitting posture. Independent of the convenience of this position, they enjoy the pleasure of gnawing the bark and wood, which is grateful to their taste, and which they prefer to any other diet.

While some of the most able are employed in felling large timber, others traverse the banks, and cut down the smaller trees, then dress, and shorten them to a convenient length, drag them to the margin of the river, and convey them by water to the place where the building is carrying on. And here it is worthy of observation, that these trees are uniformly of a light and tender kind. You will never see a beaver attack the solid and more heavy timber. Their great object is to select such as may be easily barked, cut down, and transported; and hence they prefer the alder, willow, or poplar, which grow be-



[Beavers employed in cutting down a Cotton-tree.]

side the margin of their favourite rivers. They sink the stakes into the water, and interweave the branches with similar stakes—an operation which implies the surmounting of many difficulties; for, in order to dress the stakes, and to place them at first in a situation nearly perpendicular, some of the labourers must stand upon the river bank, and hold the stakes with their teeth, while others plunge into the water, and dig holes in the bed of the river, to receive the points, in order to place them erect.—While some of them are thus sedulously employed, others bring earth in their mouths, with which they fill the intervals between the piles, ramming it firm, and using their tails instead of a hammer. These piles consist of several rows of stakes; and they work on, standing on the bank, as it is completed. The stakes facing the pond are perpendicular, while the others, which have to sustain the pressure of the water, slope considerably; and thus the bank, which is frequently at least ten feet at the base, narrows upward. Consequently it has not only the necessary thickness and solidity, but the most advantageous form for supporting a considerable pressure, for preventing the escape of the water, and repelling its efforts. Two or three sloping holes are also constructed near the to n order to allow the superfluous water to run off, and these they enlarge or contract according as the river falls or rises; when any breaches occur by sudden or violent inundations, the industrious architects know how to repair them as soon as the water subsides.

This is their great work. The next care is to construct their dwellings. These are uniformly erected upon piles, near the margin of the pond, and have two openings, one facing the land, another the water. They are either round or oval, varying from five to eight or ten feet in diameter. Some consist of three or four stories, with walls of two feet thickness, and are raised perpendicularly on planks, or stakes, which answer the double purpose of floors and foundations; others consist only of one story, and then the walls are low in proportion, curved at the base, and terminating in a dome or vault. But however varying in height, they are uniformly of such solidity, and so neatly plastered both within and without, that they are impenetrable by the rain, and resist the most impetuous winds. The partitions, too, are covered with a kind of stucco, as well executed as if by the hand of man; their tails serving them for trowels, their feet for plastering. In the construction of these buildings, various materials are used; wood, stone, and a kind of sandy earth, not easily acted on by water. When finished, they resemble the kraal of a Hottentot, and are carpeted with verdure, or branches of the box and fir. The opening that faces the water, answers the purpose of both a balcony and baths, for here they bathe, enjoy the summer breezes, and delight to spend their leisure hours, sitting half sunk in the water, and looking complacently over the open country. This window is constructed with the utmost care; the aperture is sufficiently raised to prevent it from being stopped up by the ice, which in the beaver's climate is often two or three feet thick. Should this occur, the busy masons set to work, slope the sill of the window, cut obliquely the stakes which support it, and thus open a communication with the unfrozen water. This element is so necessary, or rather so agreeable, that even a temporary privation appears to distress them.

During the summer months, they sedulously employ themselves in collecting an ample store of wood and bark, for winter provender. Each cabin has its magazine, proportioned to the number of inhabitants; this they share in common, and never pillage their neighbours. Some villages consist of twenty or thirty cabins. But such establishments are rare, and, generally speaking, the little republick seldom exceeds ten or twelve families, of which each has its own quarter of the village, its magazine, and separate habitation. The smaller cabins contain from two to six, the larger from eighteen to twenty, and even thirty beavers. But as the parties are generally paired, it is calculated that each society consists of one hundred and fifty or two hundred, who at first

labour jointly in raising the great publick building, and afterward in select tribes or companies, to construct particular habitations. In this society, however numerous, universal peace is maintained.—Their union is cemented by common labours, and rendered perpetual by mutual convenience. Moderate desires, with simple tastes, and aversion to blood and carnage, render them insensible to the allurements of war and rapine. They enjoy every possible good, while worldly men only pant after happiness Friends to each other, they coalesce for mutual protection ; and if they have any enemies, they know how to avoid them. When danger approaches, they apprize one another by striking their tails on the surface of the water, the noise of which is heard at a considerable distance, and resounds throughout their numerous habitations. In a moment they are gone ; some plunge into the lake—others entrench themselves within their walls, which can be penetrated only by the fire of heaven or the arms of men, and which no animal attempts either to open or overcome.

POPULAR MEDICAL OBSERVATIONS.

In the present state of medical knowledge, diffused as it is throughout all classes of the community, when almost every head of a family has read some popular work on physick, possesses a medicine-chest, and is able to prescribe remedies in simple disorders, without having recourse to a professional man, it is much to be regretted that those precautions should be neglected, which, easy and simple as they are, would, in many instances, prevent the necessity of applying to medicine for relief. Even the facility with which a remedy is obtained leads, in some measure, to the encouragement of excess, and the epicure eats a dish the more, because he can readily get rid of its more immediate ill effects by a dose of blue pill ; forgetting that every such dose thus wantonly taken is weakening the powers of his constitution, and laying the foundation for a debilitated and premature old age.

The human body has been compared with great justice to a clock or watch, in which, if a single wheel be injured, the whole mechanism becomes disordered, and, in common language, the watch goes wrong ; thus all the parts of the body are so intimately connected by nervous and vascular systems, that should one become impeded in its office the others suffer, and the whole machine is deranged. This disposition to sympathize exists in a greater degree between some organs and others ; thus the head and stomach almost always suffer together, insomuch that it becomes often a matter of difficulty to the medical man, to ascertain which is the real seat of mischief; again, between the stomach and skin the connexion is very close, and this depends, not merely on the general law of sympathy, but also on the fact that the skin is continuous with the membrane which lines the whole alimentary canal. Particular kinds of food, as acid fruits, cause, in some persons, the appearance of red spots over the whole skin, within a few moments after their being taken into the stomach ; and that sallow greasy state of skin, sometimes seen, depends on indigestion produced by overloading the stomach with animal food of an oily nature. Indeed there is hardly a disease but has its peculiar character of skin, by which the experienced physician can often judge at first sight of a patient. On the other hand, when the skin is diseased the general health suffers, and the stomach principally sympathizing, sickness, indigestion, with a host of attendant maladies, are brought on.

The skin is perhaps more neglected than any other organ, and yet if we examine for a moment the duties it has to perform, and remember its intimate relation with the stomach and intestines, in which the process of digestion and application of the food to the purpose of life is carried on, we shall readily understand how great is the importance of keeping it in health and vigour. By means of it the greater part of the superfluous matter, or waste of the body, is carried off from the bloodvessels in insensible perspiration: this is an operation of great consequence, which in health is constantly going on, and when it is checked by the unhealthy state of the pores, the circulation becomes oppressed, and thus fever, headaches, and general langour are occasioned. As much or more danger arises from a too relaxed state ; the secretions becoming unhealthy, and the skin itself more susceptible of the changes in weather, temperature, &c., thus giving rise to colds, coughs, and inflammations of internal organs.

From these general remarks the great consequence of attention to the state of the skin will be appreciated, and we will proceed to recommend a few simple rules for keeping it in order.

On rising from bed, the whole body should be sponged with cold water, and afterward rubbed well with a towel till perfectly dry ; then the application of the flesh-brush for five minutes will be of great advantage, but if not readily procured, brisk friction with a coarse towel will suffice. The good effect of this is immediately felt in the genial warmth, the activity and vigour of body, and the freshness and the exhilaration of the spirits which succeed ; and even if not felt at first, soon will be, if the plan be persevered in. No one need be afraid of this, for even if moist with perspiration on leaving the bed, the friction increases the circulation of the skin, and completely prevents the danger of cold, to which individuals of weak and relaxed fibre are so constantly subject. Persons who are liable to catch cold, and have sore-throat on the slightest exposure, and scarcely pass a day without sneezing will, by pursuing this plan for a short time, become much less susceptible, and we have known many totally freed from these troublesome and dangerous affections ; there is no doubt that it will check the progress of consumption in some stages, where there are debilitating perspirations, and often prevent the lighting up of the disease in the lungs, by thus decreasing the susceptibility of colds. In grown-up persons, of good general health, the water should be cold, both in winter and summer, the body becoming gradually used to to it as the seasons change, if the plan be commenced in the spring or summer : but with children and delicate persons, in winter the water should be tepid, that is, just above the temperature of the atmosphere. We cannot too strongly recommend the early adoption of this plan with children. They soon become accustomed to, and like, the water ;

and if care be taken not to give a shock to the frame by using the water too cold, the benefit they will derive from it is very great. At the same time we would warn parents of the great danger of exposing children, with little clothing on, by day or night, from an idea of making them hardy: nothing can be more dangerous than the practice of sending out delicate children with naked legs and bosoms, to bear the inclemencies of our variable climate; some may be strong enough to struggle through injury, but it is always dangerous, and leads to inflammation of the lungs, of which so many die in childhood, or sows the seed of consumption, which removes them from the world, just as they are bursting forth into the full bloom of beauty, and entering on their career of usefulness.

Cold fresh-water bathing is often very beneficial, but as it is a great shock to the system, it should not be practised by the healthy more than three times a week, and, whenever not followed by a glow of warmth, or if attended by feelings of lassitude and languor, it must be given up entirely. The same may be said of sea-bathing, but as the temperature is more equal, and the stimulating effect of the salt on the skin prevents chilling, it may be used with advantage when the fresh-water bath would be highly injurious. The best time for either is before breakfast; it is improper after a full meal, as the shock and reaction following interfere much with the progress of digestion. It should also be abstained from when fatigued from any cause. The shower-bath may also be used by persons in health without fear, so long, at least, as the feelings after taking it are of a pleasurable description; and as it is the most easily procured, it is a pity that it is not in more general use. Indeed, there can be no doubt that, however used, whether by sponging, or the shower-bath, or immersion, cold water excites the action of the vessels of the skin, gives them tone, enables them to resist the influence of the ordinary vicissitudes of the weather, and thus wards off disease to a very remarkable extent.

The Smallpox is now rife among us. The disease, it is true, is usually of a mild character, but it is nevertheless a formidable, a troublesome, a disfiguring disease; and one which is never without some risk, under any circumstances, however felicitous.

The introduction of vaccination has, it is true, counteracted, in an almost incredible degree, the ravages which this disease formerly made. Under its protecting influence the smallpox gradually disappeared, very little was seen of it, and it consequently became almost forgotten. Every child was vaccinated, and parents thought that all was safe. But, unfortunately, they were too easily satisfied; they saw a pustule and thought it enough, without heeding whether the pustule was *perfect*, or thinking it of much moment if it was *prematurely broken*. In this state are now thousands of our fellow-countrymen. Again: It is now thought by many that the protection that the vaccine lymph affords is not *permanent*. Its power is thought to be exhausted by diseases in which the skin becomes affected, also by the changes produced in the system by puberty: hence an individual even may have had kine-pock regularly, and yet, after suffering from scarlet-fever, measles, &c., or severe typhus fever, be liable to take the smallpox, perhaps modified smallpox, but still smallpox which *may* prove fatal. Here, then, are the reasons that smallpox has again became so prevalent. We say then to our readers, if you are imperfectly vaccinated, or if you have had cutaneous diseases since you were vaccinated, the chances are that you are not safe, that you are liable to an attack of smallpox. Convert this uncertainty into certainty. Live temperately for a week or ten days; take two or three doses of some simple aperient medicine, and then go and be vaccinated. You owe this to yourself and to your family. It will not be much trouble to you; it can cost you little; if you are poor, it will cost you nothing; the inconvenience will be very trifling, the benefit immense. The vaccination may not take effect. Are you safe under such circumstances? Perhaps not. Wait three months; once again go through the preparatory treatment; and again be vaccinated. If it should take effect, it a pustule should be formed, remember you have proof that you were liable to the inroads of smallpox, and should feel as much interested in persuading you to do so.

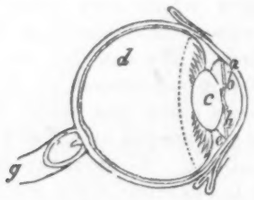
We shall conclude these observations with Dr. George Gregory's able description of the perfect vaccine pustule, abridged from the "Cyclopædia of Practical Medicine."

"The *perfect* vaccine pustule. On the *second* day after vaccination, the incised part feels elevated, is somewhat raised above the level of the parts around it; on the *fifth* day, a distinct vesicle is formed, having *an elevated edge* and a *depressed centre*; on the *eighth* day, the vesicle is distended with clear lymph, is circular, and is either of a pearl-white, or slightly yellow colour; it is like a smallpox pustule, having a turgid, firm, shining, wheel-shaped margin. A reddish areola, or inflamed ring, now (eighth evening) forms around the pustule, from one to three inches in diameter; and on the *tenth* day, there is beneath this areola considerable hardness and swelling of the cellular tissue. On the *eleventh* day this begins to subside, leaving two or three concentrick circles of a bluish tinge. Meanwhile, the vesicle has burst and its surface has become of a brownish colour. The lymph that remains, becomes opaque and concretes, and the vesicle, about the end of the *second week*, is converted into a hard round scab, having a red brown colour. The scab contracts, falls off about the twenty-first day, leaving a permanent, depressed, striated and indented cicatrix.

"The imperfect pustule is highly irritable, is permaturely efflorescent, advances too rapidly, attaining its height on the *fifth* day. It is *acuminated* and *conoidal*, more like a festering sore. The succeeding scab is small, and it drops off about the *tenth* day."

Light.—One of the most curious properties of bodies, is their power of absorbing light. Charcoal is the most absorptive of all. Even the most transparent bodies in nature, air and water, when in sufficient thickness, are capable of absorbing a great quantity of light. Sir I. Newton concluded, "that the colours of natural bodies themselves, but arise from the disposition of the particles of each body, to *stop* or *absorb* certain rays; and thus to reflect more copiously the rays which are not thus absorbed." Dr. Brewster.

ACCOMMODATION OF THE EYE TO DISTANCES.*



[Section of the Eye.]

a, Cornea; *b*, Aqueous Humour; *c*, Crystalline Lens; *d*, Vitreous Humour; *e*, Ciliary Processes; *g*, Optick nerve.

LIKE the magnifying-glass in a *camera obscura*, the crystalline lens is the part essential to the eye, as an optical instrument; it collects the light in such a manner, that the reduced image of the objects from which it proceeds, is formed on the retina; but as the glass in the instrument referred to, requires to be shifted according to the distance of the object, so a change must be effected in the eye, in order that a perfect image may be formed upon the retina, which may be compared to the ground-glass or surface that receives the image in the camera obscura.

In animals that live in air, the crystalline lens *c*, resembles a magnifying-glass, but in a great many fishes, it is quite round, something like a pea.

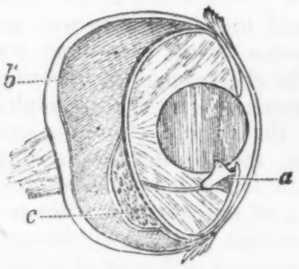
When we shift an ordinary magnifying-glass for the purpose of adjusting it, we must be careful to keep every part of the edge at an equal distance from the space it formerly occupied, or it will be turned away from the object; we cannot therefore adjust it by drawing a simple thread fixed at the edge. When we shift a magnifying-glass which is entirely round, the object continues visible whether the glass be rolled or not; consequently, it may be adjusted by a single thread as well as by a number. In many fishes, the magnifier is quite round and it is shifted by the action of a single instrument; while in man, and other animals that live in the air, there are from sixty to eighty instruments placed round the eye of the magnifier, for drawing it backward and forward in a regular manner.

[Eye of Salmon.]
a, Membrane of the Lens.

[Eye of Halibut.]
a, Muscle of the Lens.

At the under part of the eye of the herring and similar fishes, there is attached to the lens, or magnifier, a membrane which draws it forward by shortening the part that is before the point where they are joined; while the magnifier is drawn back by shortening the part of the membrane behind the point of attachment.

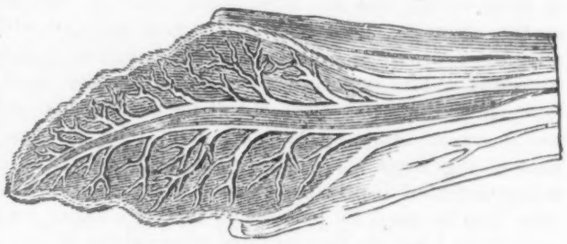
A similar effect is produced in the halibut and in the striped bass by a little muscle at the under part of the magnifier; but in the latter fish the part of the muscle which is before the place where it is fixed to the magnifier, passes through a loop, over which it plays as a string on a pulley. The blood-



[Eye of Striped Bass.]
a, Muscle of the Lens.

[Eye of Halibut.]
a, Division in the Retina.

vessels and nerves which nourish this little muscle, are contained in a sheath, which enters at the back of the eye, and passes towards the magnifier, and on one side of the line of direct vision. To avoid the motions produced on this sheath, or cord, by the contraction of the muscle, the retina is divided; for it is evident that if the retina had been entire, the sheath having, by the action of the muscle, a tendency to become straight, would rise upon, and thus disturb it.



[Ciliary Process of Ox, magnified.]

[Arrangement of Ciliary Process in man.]

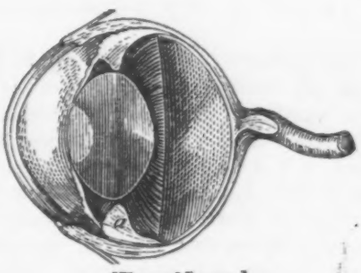
When the magnifier is not altogether round, it is moved by a number of membranes, full of bloodvessels, which are fixed to a delicate skin at the edge of the magnifier. Each of these membranes (or ciliary processes as they are called) resembles a leaf which is triangular when folded. When certain fibres at the roots of these membranes contract, the latter become distended with blood, and being of course elongated, the magnifier is drawn forward: when the action of the fibres is discontinued, the distended bloodvessels contract, and the magnifier is drawn backward.

To prevent the beats of the heart being carried to the eye, and thus injure its steady adjustment, the artery that carries the blood to the inside of the head, makes a curve before it sends off the stream which supplies the eye, as is seen on the next page. The force of the current is still farther diminished by being divided into a great number of small streams, some of which again unite before entering the eye.

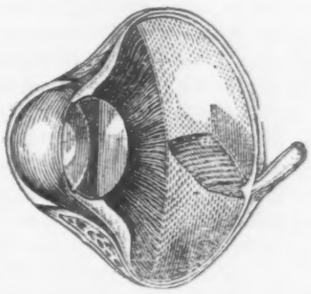
The lynx has long been considered the most quick-sighted of all animals. From the size of its ciliary process, it must possess a great range of vision.

* "The Situation of the Eye, with Reference to Natural Theology, by W. C. Wallace, occulist to the New York institution for the blind."

[Bloodvessels of the Eye.]
a, Bloodvessels that nourish the inside of the head; b, the branch of it which goes to the Eye; c, Optick Nerve.



[Eye of Lynx.]
a, Ciliary Process.



[Eye of Eagle.]
a, Fan-like Membrane.

To enable birds to perceive their food at a great distance, their eyes are furnished with an additional membrane, resembling a little fan placed at the back of the eye to draw back the magnifier still fu r, and thus accommodate the eye to very great distances.

LIVING COSTUMES

We have placed at the bottom of this page the costumes recommended for the adoption of travellers in their visits to the country around mount Sinai. It resembles the dress of the natives of that region, and it is thought to be a protection from robberies,

which is carried on very systematically by the Arabs.

The Bedouins have reduced robbery to a science, and digested its various branches into a complete and regular system. In distant excursions, every horseman chooses a companion, (*zammal*,) and both are mounted on a young and strong camel, carrying a provision of food and water, that the mare may be fresh and vigorous at the moment of attack. If the expedition is to be on foot, each of the party takes a small stock of flour, salt, and water. They clothe themselves in rags, to make their ransom easier if they should be taken. In this guise they approach the devoted camp under cloud of night, and when all are fast asleep. One of them endeavours to irritate the watch-dogs; when they attack him, he flies and artfully draws them off, leaving the premises unprotected. The *harami* then cuts the cords that fasten the legs of the camels, when they instantly rise from their kneeling posture, and walk away, as all unloaded camels do, without the least noise. To quicken their pace, the tails of the foremost or strongest are twisted, and the rest follow at the same trot. The third actor in the robbery keeps watch at the tent-door with a heavy bludgeon, to knock down such of the inmates as may venture to interfere. In this manner, fifty camels are often stolen, and driven by forced marches to a safe distance during the night. An extra share of the prey is always allowed to these three principal adventurers.

It frequently happens that the robbers are surrounded and seized; and the mode of treating their prisoners affords a curious illustration of the influence which custom, handed down through many generations, still exercises over the minds of these fierce barbarians. It is an established usage in the desert, that if any person who is in actual danger from another, can touch a third person, or any inanimate thing which he has in his hands, or with which he is in contact; or if he can touch him by spitting, or throwing a stone at him, and at the same time exclaim, "I am thy protected!" the individual is bound to grant him the protection he demands. This law or point of honour is called the *dakheil;* and however absurd or capricious, it seems naturally to arise out of those scenes of violence, the ferocity of which it is calculated to soften. A robber detected in the act of plundering, is always anxious to avail himself of the privileges of this artificial convention; while the inmates of the tent are equally desirous to prevent him. The person who first seizes the prisoner, demands on what business he is come. "I came to rob: God has overthrown me;" is the common answer. The captor (*rabat*) then binds him hand and foot, and beats him with a club, until he exclaims, *Yeneffa!* "I renounce!" (namely, the benefit of any protector.) But this renunciation being only valid for one day, the prisoner (*rabiet*) is secured in a hole dug in the ground, with his feet chained to the earth, his hands tied, and his twisted hair fastened to two stakes at both sides of his head. This temporary grave is covered with tent-poles, corn-sacks, and other heavy articles—a small aperture only being left through which he may breathe. Here he is detained, and every endeavour used to extort from him the highest possible ransom.

Still the buried captive does not despair; and circumstances sometimes favour his escape. If he can contrive through the aperture to spit upon a man or a child, or receive from their hand the smallest morsel of food, he claims the rights of the dakheil. To obtain his release, gives rise to many adventurous intrigues and ingenious stratagems. His mother or his sister will often enter the camp in the garb of a beggar, or during night, and having put the end of a worsted thread in his mouth, she retires, still unwinding the clew, to some neighbouring tent, and places the other end in the hand of the owner, who by this means is guided to the prisoner, and claims him as his "protected." The right of freedom is at once allowed; the thongs which tied his hair are cut, his fetters are struck off, and he is entertained by the captor as his guest, with all the honours of Arabian hospitality. To avoid paying a ransom, a prisoner will often remain six months under this rigorous custody, always concealing his real name, and giving himself out for a poor mendicant. He is, however, generally recognised, and obliged to purchase his liberty at the expense of all his property in horses, camels, sheep, tents, provisions, and baggage.

Should the robbers fail in their enterprise, and meet, when returning, a hostile party of the tribe they intended to pillage, their declaration, "We have eaten salt in such a tent," is a passport that ensures them a safe journey.

The Arabs are the most adroit and audacious thieves in the world; their address, indeed, in this art, is proverbial. They spring behind the horseman, seize him with one hand by the throat, and with the other rifle him of his money. They stole the swords from the sides of the French officers in Egypt, and even purloined clothes and valuable articles from under their heads while sleeping. These acts of rapacity they always palliate by using a softened and delicate language when relating them. Instead of saying, I robbed a man of this or that article, they say, "I gained it." They even pretend a sort of kindred or relationship between themselves and the victim they plunder. "Undress thyself," exclaims the brigand of the desert, as he rides furiously upon the wayfaring stranger; "thy aunt," meaning his own wife, "is without a garment!" This license they regard as a sort of birthright or national prerogative. If they are reproved for their depredations, "You forget that I am an Arab," is always the reply; which is spoken with a tone and expression of countenance that shows how little the haughty marauder is affected by the supposed opprobrium. But the chivalry of pillage, like that of hospitality, has been impaired by their intercourse with strangers. The honourable asylum of the tent has often been violated, and the sacred shield of the dakheil has not always screened the unfortunate who sought its protection.

Nutrition of a Cow.—A cow consumes, on an average, one hundred pounds of green food in twenty-four hours. This, for one hundred and eighty-five days of summer, is eighteen thousand, and five hundred pounds. In winter, forty-five pounds of root a day; or for one hundred and eighty days, eight thousand and one hundred pounds. One third of this may be potatoes; the rest, other roots. But she gives, if well fed, two thousand quarts of milk a year.

AMERICAN UNITARIANS.

In a former number, we presented our readers with a history of the Episcopal Church previous to the Revolution. We now propose to give a brief view of the creed of the American Unitarians, a denomination which is rapidly gaining proselytes in the United States, and more particularly in New England. In a brief statement and explanation of the Unitarian belief, by the Rev. Orville Dewey, he remarks: "Our position as a religious body is entirely misunderstood. Misconstructions, once in vogue, seem to have a strange power of perpetuating themselves; or, at any rate, they are helped on by powers that seem to us very strange. In the face of a thousand denials, and in spite of the self-contradicting absurdity of the charge, it is still said, and, by multitudes, seems to be thought, that our creed consists of negations; that we believe in almost nothing. It seems to be received as if it were a matter of common consent, that we do not hold to the doctrines of the Bible, and that we scarcely pretend to hold to the Bible itself. It is apparently supposed by many, that we stand upon peculiar ground in this respect; that we hold some strange position in the Christian world, different from all other Christian denominations.

"Our position in the Christian world is not a singular one. We profess to stand upon the same ground as all other Christians—the Bible. Our position, considered as dissent—our position as assailed on all sides, is by no means a novel one. The Protestants were, and are, charged by the Romanish Church with rejecting Christianity. Every sect in succession that has broken off from the body of Christians, the Lutherans and English Episcopalians first, then the Scotch Presbyterians, then the Baptists, the Methodists, the Quakers, the Puritans, the Independents of every name, have been obliged to reply to the same charge of holding no valid nor authorized belief.

"We bear a new name; but we take an old stand—a stand old as Christianity. We bear a new name, but we make an old defence; we think, as every other class of Christians have thought, that we approach the nearest to the old primitive Christianity. We bear a hard name, the name of hereticks; but it is the very name which Episcopalians, Presbyterians, Arminians, Calvinists, have once borne—which all Protestant Orthodoxy has once borne—which Paul himself bore, when he said, 'After the way which they call heresy, so worship I the God of my fathers.' We bear a new name; and a new name draws suspicion upon it, as every Christian sect has had occasion full well to know; and we think, therefore, that our position and our plea demand some consideration and sympathy from the body of Christians. We think that they ought to listen to us, when we make the plea, once their own, that we believe, according to our honest understanding of their import, all things that are written in the Holy Scriptures.

"That God Almighty, the Infinite Creator and Father, hath spoken to the world; that He who speaks indeed, in all the voices of nature and life, but speaks there generally and leaves all to inference—that He hath spoken to man distinctly, and as it were individually—spoken with a voice of interpretation for life's mysteries, and of guidance amid its errours, and of comfort for its sorrows, and of pardon for its sins, and of hope, undying hope, beyond the grave;—this is a fact, compared with which all other facts are not worth believing in; this is an event, so interesting, so transcendent, transporting, sublime, as to leave to all other events the character only of things ordinary and indifferent.

"But let us pass from the general truth of the record to some of its particular doctrines. Our attention here will be confined to the New Testament.

"I. And we say in the first place, that we believe 'in the Father, and in the Son, and in the Holy Ghost.' This was the simple primitive creed of the Christians; and as a creed, it was directed

to be introduced into the form of baptism. The rite of baptism was appropriated to the profession of Christianity. The converts were to be baptized into the acknowledgment of the Christian religion; 'baptized into the name,' that is, into the acknowledgment, 'of the Father, and of the Son, and of the Holy Ghost.'

"The creed consists of three parts; and these parts embrace the grand peculiarities of the Christian religion; and it is for this reason, as we conceive, and for no other, that they are introduced into the primitive form of a profession of Christianity.

"The first tenet is, that God is a paternal Being; that he has an interest in his creatures, such as is expressed in the title of *Father;* an interest unknown to all the systems of paganism, untaught in all the theories of philosophy; an interest not only in the glorious beings of other spheres, the sons of light, the dwellers in heavenly worlds, but in us, poor, ignorant, and unworthy as we are; that he has pity for the erring, pardon for the guilty, love for the pure, kindness for the humble, and promises of immortal and blessed life for those who trust and obey him.

"The second article in the Christian's creed is, that Jesus Christ is the Son of God, the brightness of his glory, and the express image of his person; not God himself, but his image, his brightest manifestation; the teacher of his truth, the messenger of his will; the mediator between God and men; the sacrifice for sin, and the saviour from it; the abolisher of death, the forerunner into eternity, where he evermore liveth to make intercession for us.

"The third object of our belief, introduced into the primitive creed, is the Holy Ghost; in other words, that power of God, that divine influence, by which Christianity was established through miraculous aids, and by which its spirit is still shed abroad in the hearts of men. This tenet, as we understand it, requires our belief in miracles, and in gracious interpositions of God, for the support and triumph of Christian faith and virtue.

"Let us add, that these three, with the addition of the doctrine of a future life, are the grand points of faith which are set forth in the earliest uninspired creed on record; commonly called 'The Apostles' Creed.' To that simplicity of faith, then, we hold fast. On that primitive and beautiful record of doctrine we put our hand, and place our reliance. We believe 'in the Father, and in the Son, and in the Holy Ghost.' May the Father Almighty have mercy upon us! May the Son of God redeem us from guilt, from misery, and from hell! May the Holy Ghost sanctify and save us!

"From this general creed, let us now proceed to particular doctrines.

"II. We believe in the atonement. That is to say, we believe in what that word, and similar words mean, in the New Testament. We take not the responsibility of supporting the popular interpretations. They are various, and are constantly varying, and are without authority, as much as they are without uniformity and consistency. What the divine record says, we believe, according to the best understanding we can form of its import. We believe that Jesus Christ 'died for our sins;' that he 'died, the just for the unjust;' that 'he gave his life a ransom for many;' that 'he is the Lamb of God, that taketh away the sins of the world;' that 'we have redemption through his blood;' that we 'have access to God, and enter into the holiest, that is, the nearest communion with God, by the blood of Jesus.' We have no objection to the phrase, 'atoning blood,' though it is not scriptural, provided it is taken in a sense which the Scripture authorizes.

"III. In the third place, then, we say, that we believe in human depravity; and a very serious and saddening belief it is, too, that we hold on this point. We believe in the very great depravity of mankind, in the exceeeding depravation of human nature. We believe that 'the heart is deceitful above all things, and desperately wicked.' We believe all that is meant, when it is said of the world in the time of Noah, that 'all the imaginations of men, and all the thoughts of their hearts were evil, and only evil continually.' We believe all that Paul meant, when he said, speaking of the general character of the heathen world in his time, 'There is none that is righteous, no, not one; there is none that understandeth, there is none that seeketh after God; they have all gone out of the way, there is none that doeth good, or is a doer of good, no, not one; with their tongues they use deceit, and the poison of asps is under their lips; whose mouth is full of cursing and bitterness; and the way of peace have they not known, and there is no fear of God before their eyes.'

"But let the reader of this exposition take with him these qualifications; for although it is popular, strangely popular, to speak extravagantly of human wickedness, we shall not endeavour to gain any man's good opinion by that means.

"First, it is not the depravity of *nature*, in which we believe. Human nature, nature as it exists in the bosom of an infant, is nothing else but capability; capability of good as well as evil, though more likely from its exposures, to be evil than good. It is not the depravity, then, but the depravation of nature, in which we believe.

"Secondly, it is not in the *unlimited* application of Paul's language, that we believe. When he said, 'No, not one,' he did not mean to say, without qualification, that there was not one good man in the world. He believed that there *were* good men. He did not mean to say, that there was not one good man in the *heathen* world; for he speaks in another place, of those, who, 'not having the law, were a law to themselves, and by nature did those things which are written in the law.' Paul meant, doubtless, to say, that the world is a very bad world, and in this we believe.

"Neither do we believe, in what is technically called, 'total depravity;' that is to say, a total and absolute destitution of every thing right, even in bad men. No such critical accuracy do we believe that the Apostle ever affected, or ever thought of affecting. A very bad child may sometimes love his parents, and be melted into great tenderness toward them; and so a mind estranged from God, may sometimes tenderly feel his goodness.

"Finally, we would not portray human wickedness without the deepest consideration and pity for it. Alas! how badly is man educated, how sadly is he deluded, how ignorant is he of himself, how little does he perceive the great love of God to

him, which, if he were rightly taught to see it, might melt him into tenderness and penitence. Let us have some patience with human nature till it is less cruelly abused! Let us pity the sad and dark struggle that is passing in many hearts, between good and evil; and, though evil so often gains the ascendency, still let us pity, while we blame it; and while we speak to it in the solemn language of reprobation and warning, let us 'tell these things,' as Paul did, 'even weeping.'

"IV. From this depraved condition, we believe, in the fourth place, that men are to be recovered, by a process which is termed, in the Scriptures, regeneration. We believe in regeneration, or the new birth. That is to say, we believe, not in all the ideas which men have annexed to those words, but in what we understand the sacred writers to mean by them. We believe that, 'except a man be born again, he cannot see the kingdom of God;' that 'he must be new created in Christ Jesus,' that 'old things must pass away and all things become new.' We certainly think that these phrases applied with peculiar force to the condition of people, who were not only to be converted from their sins, but from the very forms of religion in which they had been brought up; and we know indeed that the phrase 'new birth' did, according to the usage of language in those days, apply especially to the bare fact of proselyuism. But we believe that men are still to be converted from their sins, and that this is a change of the most urgent necessity, and of the most unspeakable importance.

"Now there is usually a time in the life of every devoted Christian when this change commences. We say not, a moment; for it is impossible so to date moral experiences. But there is a time, when the work is resolutely begun. Begun, we say; for it cannot in any brief space be completed. How soon it may be so far completed, as to entitle its subject to hope for future happiness, it is neither easy, nor material, to say. But to aver that it may be done in a moment, is a doctrine of which it is difficult to say whether it is, in our view, more unscriptural, extravagant, or dangerous.

"With such qualifications and guards, authorized by the laws of sound criticism, we believe in regeneration, and we believe that the spirit of God is offered to aid, in this great work, the weakness of human endeavour.

"V. In the fifth place, we believe in a future state of rewards and punishments. We believe that sin must for ever produce misery, and that holiness must for ever produce happiness. We believe that there is good for the good, and evil for the evil, and that these are to be dispensed exactly in proportion to the degree in which the good or the evil qualities prevail.

"We believe, too, in a heaven and a hell. We believe that there is more to be feared hereafter than any man ever feared, and more to be hoped than any man ever hoped. We believe that heaven is more glorious, and that hell is more dreadful, than any man ever conceived. We believe that the consequences, both in this world and another—that the consequences to every man, of any evil habits he forms, whether of feeling or action, run far beyond his most fearful anticipations. Are mankind yet so gross in their conceptions, that outward images convey the most transporting ideas they have of happiness, and the most tremendous ideas they have of misery? Is a celestial city all that they understand by heaven? Let them know that there is a heaven of the mind, a heaven of tried and confirmed virtue, a heaven of holy contemplation, so rapturous, that all ideas of place are transcended, are almost forgotten in its ecstacy. Is a world of elemental fires and bodily torments all that they understand by hell? Let them consider, that a hell of the mind, the hell of an inwardly gnawing and burning conscience, the hell of remorse and mental agony, may be more horrible, than fire, and brimstone, and the blackness of darkness for ever! Yes, the crushing mountains, the folding darkness, the consuming fire might be welcomed, if they could bury, or hide, or sear the guilty and agonized passions, which, while they live, must for ever, and for ever burn, and blacken, and blast the soul—which, while they live, must for ever, and for ever crush it down to untold and unutterable misery.

"VI. Once more, and finally; we believe in the supreme and all-absorbing importance of religion.

"'What shall it profit a man, if he gain the whole world and lose his own soul?' is to us the most undeniable of all arguments; 'What shall I do to be saved?' the most reasonable and momentous of all questions; 'God be merciful to me a sinner!' the most affecting of all prayers. The soul's concern is the great concern. The interests of experimental, vital, practical religion, are the great interests of our being. No language can be too strong—no language can be strong enough, to give them due expression. No anxiety is too deep, no care too heedful, no effort too earnest, no prayer too importunate, to be bestowed upon this almost infinite concern of the soul's purification, piety, virtue, and welfare. No labour of life should be undertaken, no journey pursued, no business transacted, no pleasure enjoyed, no activity employed, no rest indulged in, without ultimate reference to that great end of our being. Without it, life has no sufficient object, death has no hope, and eternity no promise."

THE MOTHER.

The cold wind swept the mountain height,
And pathless was the dreary wild,
And 'mid the cheerless hours of night
A mother wander'd with her child—
As through the drifting snow she press'd,
The babe was sleeping on her breast.

And colder yet the winds did blow,
And darker hours of night came on,
And deeper grew the drifts of snow—
Her limbs were chill'd—her strength was gone.
Oh God! she cried, in accents wild,
If I must perish, save my child.

She stripp'd her mantle from her breast,
And bared her bosom to the storm,
And round the child she wrapp'd the vest,
And smiled to think the babe was warm;
With one cold kiss, one tear she shed,
And sank upon a snowy bed.

At dawn, a traveller pass'd by,
And saw her 'neath a snowy veil—
The frost of death was on her eye,
Her cheek was cold and hard and pale;
He moved the robe from off the child;—
It lived—look'd up—and sweetly smiled.

REVOLUTIONARY REMINISCENCES.

BENNINGTON BATTLE-GROUND.

On the morning of the sixteenth of July last, I had the pleasure of joining a party of ladies and gentlemen, riding on horseback, to view the ground where the celebrated Bennington battle was fought. Although it is called the battle of Bennington, yet the actual engagement took place in Hoosick, near the Vermont line. It probably received its name from the fact, that the object of strife was situated in Bennington, and that the people of that place, old and young, contributed much to this small but important victory.

Our course was northwest, about nine miles from the courthouse.

Although the sun did not shine upon us in his strength, yet the interposing clouds seemed only to add fresh coolness to the morning, and thus enhance the pleasure of our ride. The whole company appeared in fine spirits; our horses were gay and lively, and even the old dog Hector seemed to partake of the general gladness.

On either side of the road, the fields were loaded with abundance; while here and there was seen the farmer who seemed to rejoice as his strong hands gathered these fruits of his summer's toil.

We continued our way, sometimes upon the green banks of a pure and limpid stream, at others, rising abruptly to the high summits of those hills from whence lay stretched, far in the blue distance, a bold, yet delightful landscape.

After a most delightful ride of about seven miles, we were informed that a spot of some interest was near at hand. A farmer, living near, learning the object of our visit, mounted his nag in a twinkling, and came galloping to tell us what he knew about the matter. We all immediately wheeled and gave him audience; whereupon he raised himself in his stirrups, (or by-the-way, I believe he was bareback,) and pointed to an orchard upon a steep side-hill to the right, and said: "Fifty-five years ago, the fourteenth day of next August, General John Stark encamped in that orchard, then just planted, to watch the movements of Colonel Baum, who had just advantageously posted himself upon a hill about two miles below."

Our minds soon ran back to the time when the whole surrounding country sounded with the din of battle; when even the place whereon we looked, was covered with ardent warriors. But now, how changed! On the same turf where was the bustle of a camp, the timid flock was lying in perfect quiet, and where were fear and apprehension, are now peace and safety, each "under his own vine and fig-tree, and none to molest or make him afraid."

After listening to our informant for some time, we bade him good morning, and resumed our ride.

About three quarters of a mile beyond this, we came to the celebrated Mather's place; a large brick house singularly constructed, built in *four* towns, *three* counties, and *two* states! Whether placed in this spot to dodge the sheriff, or a worse adversary, I cannot say.

I was informed that one of its occupants had improved the great dodging facilities it afforded, to the frequent discomfiture of the officer. One day, the sheriff being come, duly furnished with the instrument that readeth "for the want thereof take the body," he was politely invited to be seated at dinner, then just ready. A seat was assigned the man of writs in Vermont, while "mine host" took a chair opposite, in the state of New York. Dinner being through, the execution was forthcoming, and "mine host" was invited to jail. "Not as you know on," said he; "not being in your jurisdiction, I must beg leave to decline." How the matter ended, I do not know.

Leaving the old house, we followed upon the banks of the river, which we were obliged to ford in two places. As we approached the last fording-place, the river, being swollen by late rains, rolled its dark waters in a current so strong and deep, that it made the good courage of our ladies to waver. However, we crossed without accident. Coming out of the river we looked directly upon the hill on the summit of which Colonel Baum had halted, being in sight of General Stark's army drawn up in order of battle; but not thinking it prudent to attack them, he encamped and sent expresses to inform Colonel Breyman of his situation. This officer was stationed at Batten-kill, with about one thousand troops, consisting of Brunswick grenadiers, light infantry and chasseurs, to reinforce Colonel Baum in case he needed. General Stark also declined an attack, as his opponent had very much the vantage ground. He retreated to, and encamped in the orchard we have just spoken of.

That night, a council of war was held, and it was decided to attack Colonel Baum next morning before he could be reinforced; but the weather being rainy, little was done on either side; except the skirmish, in which the Americans were for the most part successful.

Colonel Baum's forces consisted of five hundred Hessians and tories, besides more than one thousand Indians. In his pocket, he had those prodigious instructions which are the greatest curiosity in that way, I have ever seen. Were they not so long, I could insert them here. In substance, they were to have Colonel Baum proceed through the New Hampshire Grants, to take all the horses, carriages, &c., that he found, cross the mountains to Brattleborough, and come from there to meet Burgoyne at Albany; make prisoners of all officers, whether civil or military, acting under Congress—make the whole country believe that it was Burgoyne's advance guard, who were going to Boston, and at Springfield, were to be united with the British troops from Rhode Island—to bring all horses, saddles, and bridles; the horses to be tied together so that one man could lead ten horses!—And now he was just about to commence the fulfilment of these grasping requirements. On the morning of the sixteenth, General Stark was joined by a body of militia from Berkshire, under command of Colonel Symonds.

General Stark having assembled his Green Mountain boys, read in their countenances the certainity of his success. He saw before him men who had followed the plough their lives long, and now they stood up shoulder to shoulder, in no feeble array, many of them armed with their usual hunting equipments. Pointing them to where the enemy lay, and then turning to them, he saw in their very eyes that victory or death was the deep and settled

purpose of their souls, and he exclaimed: "The enemy are ours, or Molly Stark lies a widow to night!" Words that will be for ever memorable in the archives of our country.

The whole force was now divided into three divisions. Colonel Nichols, with two hundred and fifty men, was to gain the rear of the enemy's left wing, and Col. Hendrick, with three hundred and fifty, was to gain their rear right, while General Stark himself attacked them in front. The battle, according to Williams, commenced about three o'clock in the afternoon.

The Indians retreated with savage yells at the first onset. And after a severe engagement of nearly two hours, the enemy surrendered. Among the "*spoils*," were two brass cannon, which the Americans found of great service. This was no sooner accomplished, than General Stark was informed that Colonel Warner was just arrived with a fresh regiment from Manchester. This brave man went directly to fight Colonel Breyman, while General Stark collected his forces to sustain him. The conflict was desperate on both sides. It continued until night-fall, when the German troops gave way, and left the field to their Yankee victors. Under cover of the darkness, many of them escaped. Colonel Baum received a wound in the first engagement, which soon after proved mortal.

The Americans took that day, four fieldpieces, twelve brass drums, two hundred and fifty dragoon swords, four ammunition-wagons, and seven hundred prisoners. Their own loss was thirty slain, forty wounded.

The influence of this engagement was very great. A long night of reverses had hung over the northern section of our country, and this was the first dawning of that bright day which was fast approaching.

Our company returned by a circuitous route, and after riding about twenty-three miles, we arrived at home, and the long shades of the trees told us certainly that the day was ending.

USEFUL ARTS.

STAINING OF WOOD.

This is a process but little understood, and yet it is one which may be readily accomplished by any ordinary workman. For a bright red stain for wood, make a strong infusion of Brasil-chips in water impregnated with pearlashes, in the proportion of an ounce to a gallon. With this infusion, after it has stood with frequent stirring two or three days, strained and made boiling hot, brush the wood over till it appears strongly coloured; and while it is wet, brush it over with alum-water, made in the proportion of two ounces of alum to a quart of water.

For a less bright red, brush over the wood with a tincture made by dissolving an ounce of dragon's blood in a pint of spirit of wine.

For a pink or rose red, add to a gallon of the above infusion of Brasil-wood, two ounces of pearlashes, and use it as before, observing to brush the wood over often with the alum-water. These reds may be varnished in the ordinary way. It may be proper to add that vegetable colours are not so durable as those from metals.

Wood may be stained blue by means either of copper or indigo. The brighter blue may be obtained by brushing a solution of copper, while hot, several times over the wood, and then brushing a solution of pearlashes, in the proportion of two ounces to a pint of water hot over the wood. It is stained blue with indigo by brushing it with the indigo prepared with soap-lees, a solution of white tartar or cream of tartar, made by boiling three ounces of either in a quart of water, brushing over the wood plentifully before the tincture of indigo is quite dry. These blues may be brushed and varnished like the reds if necessary.

Wood may be stained green by dissolving verdigris in vinegar, or the crystals of verdigris in water, and with the hot solution brushing over the wood till it be duly stained.

A light red-brown mahogany colour may be given to wood by means of a decoction of madder and fustick wood ground in water, in the proportion of half a pound of madder, and a quarter of a pound of fustick to a gallon, or instead of the fustick, an ounce of the yellow berries may be used. Brush over the wood with this solution while boiling-hot, till the due colour be obtained. The same effect may, to a considerable degree, be produced by the tincture of dragon's blood and turmerick root in spirit of wine.

For the dark mahogany take the infusion of madder as above, and substitute for the fustick two ounces of logwood; and, when the wood has been brushed over several times and is dry, brush it over with water in which pearlashes have been dissolved, in the proportion of a quarter of an ounce to a quart. The wood, in the better kind of work, should be afterward varnished with three or four coats of seed-lack varnish, but for coarse work with the varnish of resin and seed-lack, or they may be well rubbed over with drying oil.

Wood may be stained purple by brushing it over several times with a strong decoction of logwood and Brasil, made in the proportion of one pound of the logwood, and a quarter of a pound of the Brasil, to a gallon of water, and boiled for one hour or more. Let the wood, well coloured and dry, be then slightly passed over by a solution of one drachm of pearlashes in a quart of water. A solution of gold in aqua regia, will give a durable purple stain to wood.

For a deep black, the wood is brushed over four or five times with a warm decoction of logwood, made as above without the Brasil, and afterward, as often with a decoction of galls to two quarts of water, allowing it to dry thoroughly between the several applications of the liquor; thus prepared, it receives a fine deep colour from being washed over with a solution of sulphate of iron in the proportion of two ounces to a quart, in the room of which some use a solution of iron in vinegar, keeping the vinegar for this purpose upon a quantity of the filings of the metal, and pouring off a little as it is wanted. A pretty good black is also obtained more expeditiously by brushing over the wood, first with the logwood liquor, and afterward with common ink.

Birds.—All birds are oviparous. This is their law of reproduction: none bring forth live ones. Their eggs vary in number, size, and colour, but are always covered with a calcareous shell, the produce of their own living functions.

AMERICAN CAVERNS.

STUPENDOUS CAVERN AT WATERTOWN.

Passing through the beautiful village of Watertown a few days since, curiosity induced me to visit this wonderful phenomenon, first discovered in 1820, I believe—and an imperfect description of it may not be uninteresting to your readers.

The ground in which it is located is gently rising, so as to embrace a perfect view of the whole town, which surrounds it in a crescent form, and is beautifully adorned with trees, and forms an elegant park or lawn. It has long been neglected, owing to a destructive fire which destroyed the factory belonging to the Jefferson cotton-mills company, some years since, and has recently passed into the hands of enterprising individuals, who are about to adorn it with mansions of an elegant structure. The scenery all round is untiring and picturesque, with falls of water next in beauty to Trenton and Passaick. On a small island in the centre of the Black Water river, are the ruins of the factory just alluded to; it was one of the largest in the United States—its stone walls of gray and white, all standing, with its hollow windows and broken fissures, give note of the progress of decay; the view from one end to the other, seems interminable, and appears like a monument of the history of ancient days. Its bare walls are unsupported but at their base, and their towering heights are inaccessible, crumbling and imminent. They stand as a moral emblem of the resistance against every thing save the elements and time. The lightning's flash struck down part of the rear wall, which the fire could not overcome, and the rude tempest still howls through its sleeping clefts—its history tells also the tale of wo and prosperity—its owner was called out of Church on a Sabbath morning to see his factory in flames: it ruined him, and he travelled to the far West, where unexpectedly, he is now, by a reverse of fortune, accounted one of the wealthiest.

A moonlight visit to this scene, is beyond my description. I sat down on a projecting cliff which overlooks the mighty falls and abyss below, buried in my own thoughts, and the drowning noise of the cataract with its spray sparkling in the moonbeam, and its waters rushing round in wild and sportive play.

This extraordinary cavern, or grotto, is about ten rods from the river, and north of the falls and island. A guide, who resides on the premises, led the way, illuminated the halls below, and restrained us from entering too hastily, owing to its dampness. The great extent of the cavern, and the great number of spacious rooms, halls, and chambers, into which it is divided, the immense quantities of calcareous concretions which it contains, and the different states of these concretions, from the consistence of lime-water, to that of the most beautiful stalactites as hard as marble, render it difficult, if not impossible to describe it, and I shall only attempt to give a faint description of three or four rooms.

The mouth of the cave is in a small hollow, about five feet below the surrounding surface of the earth; you then descend sixteen and a half feet into a room about sixteen by twenty feet, and eight feet high; and behold in front of you a large flat, or table-rock, twelve or fourteen feet square, two feet thick, and elevated about four feet from the bottom of the cavern; the roof overhead is covered with stalactites, some of which reach to the table-rock. On your left hand is an arched way of one hundred and fifty feet; and on your right hand is another arched way, six feet broad at the bottom, and six feet high, which leads into a large room. Passing by this arch about twenty feet, you arrive at another, which leads into a hall, ten feet wide and one hundred feet long, from five to eight feet high; it is supported by pillars and arches, and its sides are burdened with curtains, plaited in variegated forms, as white as snow. Near the middle of this hall, is an arched way, through which you pass into a large room, which, like the hall, is bordered with curtains, and hung over with stalactites; returning into the hall, you pass through another arch, into a number of rooms on the left hand, curtained, and adorned with stalactites which hang from the roof. You then descend about ten feet into a chamber, about twenty feet square, and ten feet high, curtained in the like manner, and hung over with stalactites. In one corner of this chamber, a small mound is formed about twelve feet in diameter, rising three feet from the floor, the top of which is hollow and full of water, from the drippings of stalactites above, some of which reach near the basin.

On descending from this chamber, you pass through another arch into a hall, by the side of which you see another basin of water, rising about four inches from the floor, formed in the same way, but of the shape, size, and thickness, of a large tea-tray, full of the most pure and transparent water.

The number and spaciousness of the rooms, curtained and plaited with large plaits, extending along the walls from two to three feet from the roof, of the most perfect whiteness, and resembling the most beautiful tapestry, with which the rooms are embroidered, and the large drops of water, which are constantly suspended on the points of innumerable stalactites, which hang from the roof above, and the columns of spar resting on pedestals, which, in some places, appear to be formed to support the arches above—the reflections of the lights, and the great extent and variety of the scenery of this amazing cavern, form altogether, one of the most pleasing and interesting scenes that was ever beheld by the eye of mortal man.

The traveller will find himself amply paid for diverging from his route to visit this beautiful town.

Courier & Enquirer.

Tortoise-shell.—The following cruel process for obtaining the tortoise-shell, is abstracted from an Indian newspaper, called the *Singapore Chronicle:* "This highly-prized aquatick production, when caught by the eastern islanders, is suspended over a fire, kindled immediately after its capture, until heated to such a degree, that it can be removed with the greatest ease. The animal, now stripped and defenceless, is set at liberty, to re-enter its native element. If caught in the ensuing season, or at any subsequent period, it is asserted that the unhappy animal is subjected to a second ordeal of fire, rewarding its captors this time, however, with a very thin shell. This, if true, shows more policy and skill than tenderness in the method thus adopted by the islanders; it is an unquestionable proof, too, of tenacity of life in the animal, and must further be accounted a very singular fact in natural history.

[The Siamese Twins.]

THE SIAMESE TWINS.

In our last number, we gave a description of a singular lusus naturæ, a Porcupine man. The cut at the head of this article presents one not less singular, that of the Siamese twins. They have visited most of the principal cities of the United States, but as probably many of our readers in the West, may not have seen them, the above cut has been executed for the Family Magazine. Eng and Chang (the names of the twins, Eng being on the right and Chang on the left) were born in 1811, in a small village on the coast of Siam. Their mother bore seventeen children: once she had three at a birth, and never less than two; but none of those of her children were deformed. Their parents obtained their living by fishing, and, until 1829, when they were brought to the United States, Eng and Chang employed themselves by selling shell-fish, &c. Since 1829, they have visited different parts of the United States, and have crossed the Atlantick, to England and France, where they have been visited and examined by the scientifick.

They are united at the anterior part of the chest, by a prolongation of a kind of fleshy band, the size of the hand. The ensiform cartilages of the breast-bones are bent outward, and united by ligaments at their extremities, forming a kind of joint which admits of motion in various directions. By the pulling of these ligaments, occasioned by almost every movement, the integuments below have been drawn out, as it were, so that the whole forms a band of union, horizontally about two inches broad, and in thickness, vertically, about four inches. Its length was, doubtless, originally very small. The whole mass is tough, and capable of being extended very considerably. When loose, that is, when the boys

face each other and stand close together, if one hand be placed above this curvature, and the other below it, and the latter be then pressed forcibly up, the hands approach each other so nearly, as to convey the impression (doubtless a correct one) that the intervening substance is little more than the ensiform cartilages united by ligaments, and surrounded by the integuments. The concave inner, but in this case *under* surface of these cartilages, is distinctly felt, but no pulsation whatever is distinguishable.

Although we cannot say that the skin which envelopes this projection, was originally endowed with less sensibility than that which covers other parts of the body, yet it is evident that such deficiency exists at present. We were obliged to press it forcibly between the fingers before any mark of pain was elicited, and we were informed by the attendant that he had often pinched it during their slumbers without disturbing them.

The precise effect of this physical union, on the intellectual faculties, the moral sentiments, and animal propensities of these boys—its influence on the functions of the different organs, and how far it would communicate or modify the effects of morbid or medicinal agents, are subjects on which we shall not enter. No opportunity has yet presented of observing the influence which disease or medicine in one, would exert on the other; but circumstances do not appear to justify the least suspicion of any mental individuality. Whispering in the ear of one, conveyed no sense of sound to the other. Volatile salts applied to the nostrils of one, produced in the other only a curiosity to try the same experiment on himself. Pinching the arm of one, was attended by no sensation in the other. Being desirous of ascertaining if there was *any* point where both felt, we made an impression with the point of a pin in the exact vertical centre of their connecting link; both said it hurt them. We then made other impressions, extending them very gradually further from this point: the result was, that within the distance of three-fourths of an inch from the centre toward each boy, sensation was communicated to both by a single prick; beyond this it was excited in one only, the other perceiving it in no degree whatever. This experiment was remarkably satisfactory, and we apprehend that farther than here exhibited, the two youths must be considered, whilst in a state of health, as free and independent agents, and the functions of all the other organs as unconnected as those of their brains.

Twins generally resemble each other in intellect and disposition, as well as in person, and this is particularly the case with the boys in question. When to this natural resemblance we add the habit they have contracted of acting simultaneously and in concert, we shall be less surprised than we might at first be, at the facility with which their various movements are performed, and the quickness with which one responds to the inclinations of the other.

In the course of their voyage, they would not only run, we are told, and leap with great agility and without interfering with each other, but climb to the masthead as fast as any sailor on board the ship. They are seldom observed to converse with each other, and the concert with which they act seems to be almost instinctive. In playing the game of drafts, for example which they learned with great ease, being of a people naturally fond of games and gambling, they were observed to decide on their moves almost instantaneously, and to make them with a quickness and air of decision sufficiently characteristick of all their movements. In the course of the game, sometimes one, and sometimes the other would make the move; they appeared to have the same plans, and always acquiesced in the moves of each other. Yet they sometimes *play against each other;* but so strong is their habit of co-acting, that such games go on with less freedom than when opposing a third person. Their alvine evacuations generally occur at the same time; their appetites and tastes are all very much alike; and they appear not only contented but happy, and extremely attached to each other.

Instances of children united much more closely than are these boys, are by no means rare in the books or cabinets of anatomists. The mode of union is very various, being sometimes at the hips, backs, or sides; several cases are related by Parée and Tulpius, in which the connexion was at the belly. In the Philosophical transactions is an account of two children thus united, born near Manchester, England, in 1752. In 1748, Dr. Parsons communicated to the Royal society, an account of a still-birth not very unlike that of the boys now exhibited. The fœtuses were united from the belly to the upper part of the breastbone, and the single cord by which they were nourished, entered the connecting medium at a central point on its lower surface. Dr. Cotton Mather communicated to a learned friend in England, a similar case, of which he was an eye-witness, and which occurred in Boston, in 1713.

But the most remarkable, and, as far as our memory goes, the only case on record of such monsters acquiring the adult age, occurred in Hungary more than a century ago. Two females, Judith and Helen born in Szona in 1701, were united at the lower part of the back. Their bodies, abating the deformed part alluded to, were well-shaped, and their faces beautiful. They were intelligent, and, like the boys of Siam, not only contented, but, in the language of their father, "both brisk and merry." Like them also, these girls "had not their feeling common any where but in the place of their conjunction." When one stooped she lifted the other on her back, and when one went forward, the other was drawn backward. One would sometimes sleep, while the other was awake, and though tenderly attached, their inclinations were not always the same. These Hungarian sisters were well-educated and well-bred; they spoke four different languages, and sang very prettily. They lived to the age of twenty-two years, during which time, they were exhibited in different parts of Europe, and both died together in 1723.

Other monsters might be here mentioned. The most remarkable is the following: A case of sisters, who were connected at the breast-bone, occurred in 1829, and is narrated by Dr. Samuel G. J. Decamp. They died however at birth.

In the town of Sassari, in Sardinia, was living, about four years since, a female infant having two heads and four arms on the upper part of two well-formed bodies, united at the breast. The rest of the body with the legs, were of the ordinary form and proportions. This child seemed perfectly well. One head slept while the other was awake—one cried, while the other was quiet.

FARMERS' DEPARTMENT.

GAMA GRASS.

In the first place, you must put your seed into a vessel, add to it two gills of soot, pour thereon a quart of boiling water, let the seed soak forty-eight hours, then drain and roll in plaster, when it will be fit for planting. Manure the ground with compost, consisting of equal quantities of ashes, loam and stable manure, or vegetable mould from the woods, marsh and mud and lime; plough it well, harrow and pulverize finely, then make your drills one inch deep, eighteen inches apart, and plant your seed the same distance asunder. They will come up in a few weeks, say two or three, and when up, must be kept clean of weeds, and the earth stirred two or three times during the season. If you plant but a small portion of seed, and desire to enlarge your stock of grass, let it go to seed, and when the seeds are ripening, you must be careful to go into your patch every morning, and pick them off the stalks, as they only ripen one or two at a time, and unless carefully watched, will drop off and be lost.

Early in the spring of the second year, subdivide and transplant, and so each year until you have sufficient ground set out. Each plant will make ten or twelve offsets the first year, and twice that number the second year.

If planted as soon as the frost is out of the ground, it will be fit to cut the first year, by the first of June; each succeeding year from two to four weeks sooner, and will bear cutting every thirty days for hay, and every fifteen days for soiling. It has yielded three hundred thousand pounds of green grass to an acre.

After each cutting, the earth should be stirred, and receive a light top-dressing of leached ashes.

The grass cut in the morning may be put into stack in the afternoon. In stacking, take alternately a layer of oat, wheat or rye straw, and then a layer of grass, then sprinkle with salt, &c., until your stack is completed; by this means, you not only effectually cure your grass, but convert your straw into a substance equally acceptable to your stock as the best hay.

One ounce of the seed, which contains six hundred and sixty kernels, will, by being planted and subdivided, three seasons in succession, enable the cultivator to set out a meadow of fifty-three and a half acres, which will last him seventy years.

CULTURE OF RYE.

Rye, according to some, is a native of Crete, but it is very doubtful whether any country can now be ascertained to be its native soil. It has been cultivated from time immemorial, and is considered as coming nearer in its properties to wheat than any other grain.

The varieties of rye are not above two, known as winter and spring rye; but there is so little difference between them, that spring rye sown along with winter rye, can hardly be distinguished from it.

The soil for rye may be inferiour to that chosen for wheat; it will grow on dry sandy soils, and produce a tolerable crop; and on the whole it may be considered as preferring sand to clays.

The grain, though of the same family with wheat, is less valuable. A bushel of rye weighs less, and gives less flour, and of a worse quality, than a bushel of wheat. In comparison, therefore, with wheat, it fails; still there are circumstances, which, as an object of culture, may give it the preference; first, it grows well in soils where wheat cannot be raised; second, it bears a much greater degree of cold than wheat; third, it goes through all the phases of vegetation in a much shorter period, and of course exhausts the soil less; fourth, if sown early in the fall, it gives a great deal of pasture, without much eventual injury to the crop; and fifth, its produce from an equal surface, is one sixth greater than that of wheat. These circumstances render it peculiarly precious to poor people, to mountains of great elevation, and to high northern latitudes.

Its use, as a food for horses, is known as well in this country as in Europe. The grain chopped and the straw cut, form the principal horse-feed in Pennsylvania.

The species of this grain cultivated here, are two; the black and the white; for spring rye (often mistaken for a species) is but a variety, produced by time and culture, and restored again to its former character and habits, by a similar process.

According to the usual course of crops, potatoes, in a sandy soil, precede rye. The ploughing, harrowing, and manuring given to *that* crop will therefore, make part of the preparation necessary for *this*. After harvesting the potatoes, cross-plough the ground, and sow and harrow in the rye, taking care, as in all other cases, that the seed be carefully selected, and thoroughly washed in lime-water, as the means best calculated to prevent the *ergot*—a disease to which it is most liable, and which is supposed to be an effect of too great humidity.

Diseases.—Rye is not exempt from the attack of insects; but suffers less from them than either wheat or barley.

The spur or ergot of rye, is by some considered as a fungus somewhat analogous to that which produces the smut. It is not peculiar to rye, but is very seldom found on any other gramineous plant. It is a production of the seeds; is long, horny, and cartilaginous, and is sometimes straight, at others, curved; sometimes it is found more than two inches in length. The resemblance of this substance to cockspur, has given it the name by which it is distinguished.—On breaking a spurred seed, you find within it a substance of dull white colour, adhering to the violet skin that surrounds it. Rye thus attacked cannot germinate. It has been remarked that the most rainy years were the most productive of this disease; that the soils on which most spurred rye grew, were most moist; that high grounds were nearly free from them, unless when the furrows prevented the water from running freely off; while the lower parts of the same field produced more than the upper parts.

Slip potatoes.—As the excessive rains and freshets, in almost every part of the United States, have injured the crops of provisions, we must expect a farther increase in the present high prices of every article of food. It, therefore, becomes a duty with every farmer in the Union,

to take advantage of the present opportunity, and increase his crop of slip potatoes.

We were told by a very experienced planter, that he had greatly increased the quantity of slip potatoes produced to the acre, by simply chopping through the vines with a hoe, across the bed, about midway between each set of sprouts, as the slips had taken good root. We believe this to be true, as it would cause the slips to throw off from each divided end, numerous small roots, all bearing potatoes, instead of expending their strength in spreading vines on the surface of the earth.

THE MUD VOLCANO OF GROBOGAN.

HAVING received an extraordinary account of a natural phenomenon in the plains of Grobogan, fifty pals or miles northeast of Solo, a party, of which I was one, set off from Solo, on the eighth of September, to examine it.

On approaching the village of Kuhoo, we saw, between two trees in a plain, an appearance like the surf breaking over rocks, with a strong spray falling to leeward. The spot was completely surrounded by huts for the manufacture of salt, and at a distance looked like a large village. Alighting, we went to the Bludugs, as the Javanese call them. They are situate in the village of Kuhoo, and by Europeans are called by that name. We found them to be on an elevated plain of mud, about two miles in circumference, in the centre of which immense bodies of salt mud were thrown up to the height of from ten to fifteen feet, in the forms of large globes, which bursting, emitted volumes of dense white smoke. These large globes or bubbles, of which there were two, continued throwing up and bursting seven or eight times in a minute, by the watch. At times, they threw up two or three tuns of mud. We got to leeward of the smoke, and found it to smell like the washing of a *gunbarrel*. As the globes burst, they threw the mud out from the centre with a pretty loud noise, occasioned by the falling of the mud upon that which surrounded it, and of which the plain is composed. It was difficult and dangerous to approach the large globes or bubbles, as the ground was all a quagmire, except where the surface of the mud had become hardened by the sun. Upon this, we approached cautiously to within fifty yards of the largest bubble or mud pudding, as it might very properly be called, for it was of the consistence of a custard pudding, and of very considerable diameter; here and there, where the foot accidentally rested on a spot not sufficiently hardened to bear, it sunk, to the no small distress of the walker.

We also got close to a small globe or bubble, (the plain was full of them of different sizes,) and observed it closely for some time. It appeared to heave and swell; and when the internal air had raised it to some height it burst, and the mud fell down in concentrick circles, in which shape it remained quiet until a sufficient quantity of air was again formed internally to raise and burst another bubble. This continued at intervals, from about one half to two minutes. From various other parts of the quagmire, round the large globes or bubbles, there were occasionally small quantities of mud shot up like rockets, to the height of twenty or thirty feet, and accompanied by smoke. This was in parts where the mud was of too stiff a consistence to rise in globes or bubbles. The mud, at all the places we came near, was cold on the surface, but we were told it was warm beneath. The water which drains from the mud, is collected by the Javanese, and by being exposed, in the hollows of split bamboos, to the rays of the sun, deposites crystals of salts. The salt thus made is reserved exclusively for the emperour of Solo. In dry weather, it yields thirty dudgins, of one hundred catties each, every month, but in wet or cloudy weather less.

In the afternoon, we rode to a place in a forest, called Ramsam, to view a salt lake, a mud hillock, and various boiling, or rather bubbling pools. The lake was about half a mile in circumference, of a dirty-looking water, boiling up all over in gurgling bodies, but more particularly in the centre, which appeared like a strong spring; the water was quite cold, and tasted bitter, salt, and sour, and had an offensive smell. About thirty yards from the lake stood the mud hillock, which was about fifteen feet high from the level of the earth. The diameter of its base was about twenty-five yards, and its top about eight feet, and in form an exact cone. The top is open, and the interiour keeps constantly working and heaving up mud in globular forms, like the Bludugs. The hillock is entirely formed of mud, which has flowed out of the top; every rise of the mud was accompanied by a rumbling noise from the bottom of the hillock, which was distinctly heard for some seconds before the bubbles burst. The outside of the hillock was quite firm. We stood on the edge of the opening and sounded it, and found it to be eleven fathoms deep. The mud was more liquid than the Bludugs, and no smoke was emitted from the lake, hillock, or pools.

Close to the foot of the hillock, was a small pool of the same water as the lake, which appeared exactly like a pot of water boiling violently; it was shallow, except in the centre, into which we thrust a stick twelve feet long, but found no bottom. The hole not being perpendicular, we could not sound it with a line.

About two hundred yards from the lake were several large pools or springs, two of which were eight and ten feet in diameter. They were like the small pool, but boiled more violently, and smelled excessively. The ground around them was hot to the feet, and the air which issued from them quite hot, so that it was most probably inflammable; but we did not ascertain this. We heard the boiling thirty yards before we came to the pools, resembling in noise a waterfall. The pools did not overflow; of course the bubbling was occasioned by the rising of air alone. The water of one of the pools appeared to contain a mixture of earth and lime, and, from the taste, to be combined with alkali. The water of the Bludugs and the lake, is used medicinally by the Javanese, and cattle drinking of the water are poisoned.

Chinese Proverb.—The fish dwells in the depth of the waters, and the eagle in the sides of heaven: the one, though high, may be reached with the arrow, and the other, though deep, with the hook; but the heart of a man, at a foot distance, cannot be known.

[Chinese Smoking Opium.]

THE CHINESE.

From the extremely interesting and valuable work lately published by the Harpers, entitled China and the Chinese, we quote the following :—

"When dressed, every Chinese of any station, wears by his side a variety of accoutrements, which would strike a stranger as being of a warlike character, but which prove, on examination, to be very peaceful appendages. A worked silk sheath encloses a fan. A small leather bag, not unlike a cartouch-box, suspended to the belt, supplies flint and steel for lighting the pipe; and the tobacco is carried in an embroidered purse or pouch." Dr Abel thus describes the appearance of the first well-dressed Chinese whom he saw on reaching the shores of the Yellow sea. Arms are, in fact, never worn on the person except by soldiers on parade; and even the military mandarins do not wear swords on ordinary occasions of ceremony. The common people are not allowed to be seen with arms except for specifick purposes of self-protection, as when carrying off their property from a fire, or as a defence against river-pirates, and the like.

The possession of *firearms* is altogether forbidden by the jealous government, as may be seen from the following extract from a Peking gazette :—"For the people to have firearms in their possession, is contrary to law, and orders have already been issued to each provincial government to fix a period, within which all matchlocks belonging to individuals should be bought up at a valuation. . . . . With regard to those firearms which are in immediate use for the safeguard of the country, the said governour has already directed the proper officers to carve on every matchlock the name of the person to whom it is delivered, and to preserve a general register of the whole. Let the governour also give strict charge to make diligent search, and prevent the illicit storing up of firearms for the future; and let the workers in iron be rigidly looked after, lest they clandestinely manufacture and sell them; the evil may thus be cut off in its commencement. Those officers who have made full and complete musters within the limited period, the governour is directed to notice properly as an encouragement to others." Those Chinese near Canton, who employ themselves in shooting wild-fowl for sale, are said to belong mostly to the militia of the province.

The extremes of heat and cold which prevail throughout the country at opposite seasons of the year, joined to the general custom of living very much in the open air, are the causes which have probably given rise to the broad and marked distinctions that exist between the summer and the winter dress of the better classes. The difference is principally marked by the cap. The summer-cap is a cone of finely-woven filaments of bamboo, or a substance resembling chip, and surmounted, in persons of any rank, by a red, blue, white, or gilded ball at the apex or point of the cone. From the insertion of this ornamental ball descends all around, over the cap, a fringe, or rather bunch of crimson silk or of red horse-hair; in front of the cap is sometimes worn a single large pearl.

The winter-cap, instead of being a cone, fits closer to the shape of the head, and has a brim, turned sharply up all round, of black velvet, or fur, and rising a little higher in front and behind than at the sides. The dome-shaped top is surmounted by the same ball as in the other case, denoting the rank of the wearer; and from the point of insertion descends a bunch of fine crimson silk, just covering the dome. On the commencement of the cold or hot weather, the first person in each province, as the tsoong-to, or viceroy, assumes his winter or summer cap; the circumstance is noticed in the official gazette, or court-circular, and this is the signal for every man under his government to make the same change. In the embassy of 1816, the imperial legate, who conducted the mission down to Canton, being for the time superiour in rank to the viceroy, in this manner put on his winter-cap, and gave the example to the province through which he was passing. Within doors, they usually wear in cold weather a small scullcap, either plain or ornamented.

The summer-garment of the better classes, is a long loose gown of light silk, gauze, or linen, hanging free at ordinary times, but on occasions of dress,

gathered in round the middle by a girdle of strong wrought silk, which is fastened in front by a clasp of agate, or of the *jade*, whtch the Chinese call *yu*. In an oppressive climate, when the thermometer is 80° or 90°, there is much ease and comfort in the loose sleeves, and the freedom from restraint about the neck, by which this dress is distinguished ; and the tight sleeves and huge collars of Europeans very naturally make them objects of compassion, if not ridicule. To the girdle are fastened the various articles noticed by Dr. Abel, as the fan-case, tobacco-pouch, flint and steel, and sometimes a sheath with a small knife, and pair of chopsticks. They are very proud of displaying a watch, which is inserted in an embroidered silk case or pouch.

The winter-dress, being nearly as loose as that of summer, is less calculated to promote warmth and comfort than the European costume, and at the same time more unfavourable to bodily activity and exertion. Over a longer dress of silk or crape, which reaches to the ankles, they wear a large-sleeved spencer, called *ma-kwa*, (or riding-coat,) which does not descend below the hips. This is often entirely of fur, but sometimes of silk or broadcloth, lined with skins. The neck, which in summer is left quite bare, is protected in winter with a narrow collar of silk or fur ; their loose dresses always fold over to the right breast, where they are fastened from top to bottom, at intervals of a few inches, by gilt or crystal buttons (the latter in mourning) with loops.

In summer, the nether garment is loose, and not

[Summer and Winter Caps.]

unlike ancient Dutch breeches ; but in winter an indescribable pair of tight leggins are drawn on separately over all, and fastened up to the sides of the person, leaving the voluminous article of dress abovementioned to hang out behind in a manner that is any thing but pleasant. Stockings of cotton or silk, woven and not knit, are worn by all who can afford them ; and in winter, persons of a certain rank wear boots of cloth, satin, or velvet, with the usual thick white sole, which is kept clean by *whiting*, instead of *blacking*, in the usual style of contrariety to our customs. The thick soles of their boots and shoes in all probability arose from the circumstance of their not possessing such a substance as *well-tanned* leather, a thinner layer of which is sufficient to exclude the wet. The shoes made for Europeans at Canton are perfectly useless in rainy weather, and spoiled on the very first wetting.

The Chinese dresses of ceremony are exceedingly rich and handsome, and contrast to great advantage with the queer, unmeaning capings and skirtings of our coats. The colour of the spencer is usually dark-blue, or purple, and the long dress beneath is commonly of some lighter and gayer hue. On state occasions this last is very splendidly embroidered with dragons or other devices, in silk and gold, and he cost amounts frequently to large sums. At the imperial feast of which the last embassy partook at Tein-tsin, the crowd of mandarins in full dress, surmounted by their crimson caps and various-coloured balls, certainly produced a striking effect.

[The Emperour Kien-loong.]

The great sin of the Chinese costume is the paucity of white linen, and consequently of washing

Even their body-garment is sometimes a species of light silk, but capable of purification. All the rest of their dress being of silks or furs, there is less demand for white calico or linen, in proportion to the numbers, than in any other country. They spread neither sheets upon their beds, nor cloths on their tables, and the want of personal cleanliness has of course a tendency to promote cutaneous and leprous complaints. Their substitute for soap is an alkaline lie, derived from a mineral substance, and rather corrosive in its nature.

The skins of all animals are converted into apparel for the winter. The lower orders use those of sheep, cats, dogs, goats, and squirrels. Even rat and mouse skins are sown together for garments. The expensive fur dresses of the higher orders descend from father to son, and form sometimes no inconsiderable portion of the family inheritance. At an entertainment in Canton, where the party, according to the custom of the country, were seated in an open room without fires, the European guests began to complain of cold; upon which the host immediately accommodated the whole number of ten or twelve with handsome wide-sleeved spencers, all of the most costly furs, telling them at the same time that he had plenty more in reserve. They have one singular species of refinement on the score of skins. The young lamb *in utero*, after a certain period of gestation, is taken out, and its skin prepared with the fine silky wool upon it, for dresses, which of course require, on account of their small size, a great number of lambs to be thus "untimely ripped," and the luxury is therefore an expensive one.

The Chinese, perhaps, may be said to possess an advantage in the absence of those perpetual and frequently absurd mutations of fashion in Europe, which at one period blow out the same individual like a balloon whom at another they contract to a mummy: and which are frequently ridiculed and followed in excess at one and the same time. They are not at the mercy and disposal, in matters of taste, of those who make their clothes, and their modes generally last as long as their garments. The human shape and dress are not varied with the infinite mutations of a kaleidoscope; and that peculiar, though indisputable species of merit, "being in the height of the fashion," the honours of which must be chiefly shared with the tailor and the milliner, is nearly unknown to them.

The only setter of fashions is the board of rites and ceremonies at Peking, and to depart materially from their ordinances, would be considered as something worse than mere *mauvais ton*. It is their business not only to prescribe the forms on all occasions of worship, or of ceremony, but the costumes which are to be worn must be in strict conformity to rule. The dresses of all ranks and orders, and of both sexes, about the imperial palace, are specified, as regards cut, colour, and material, with as much precision as in any court of Europe. From the Tartar religion of the Lamas, the rosary of one hundred and eight beads has become a part of the ceremonial dress attached to the nine grades of official rank. It consists of a necklace of stones and coral, nearly as large as a pigeon's egg, descending to the waist, and distinguished by various beads according to the quality of the wearer. There is a small rosary of only eighteen beads, of inferiour size, with which the bonzes count their prayers and ejaculations, exactly as in the Roman Catholick ritual. The laity in China sometimes wear this at the waist, perfumed with musk, and give it the name of *Heang-choo*, "fragrant beads."

The various appendages worn at the girdle, as the purse or pouch, the steel and flint-case for lighting the pipe, the watch-case, &c., are generally of the finest silk embroidery, which forms one of the principal accomplishments of the Chinese ladies. Indeed all the handsome crape shawls taken to England, some of which cost from sixty to eighty dollars, are entirely the work of women, many of whom earn more than twenty dollars a month by their labour. A Chinese is seldom seen without his snuff-bottle, which is of oval construction, and less than two inches in length, the stopper having a small spoon attached similar to that for Cayenne pepper, with which a portion of snuff is laid on the left hand, at the lower joint of the thumb, and thus lifted to the nose. The material of these bottles is sometimes porcelain, or variegated glass, carved with considerable skill in the style of cameos; or rock-crystal, with small figures or writing on the *inside*, performed in a manner which it is not easy to account for.

[Spectacles.]

But to return to costumes. The head of the men, as we have before noticed, is invariably shaven, except at the top, whence the tail depends in conformity to the Tartar custom; the only change being in mourning, when the hair is allowed to grow. The Chinese having so little beard, the principal work for the razor is on the head, and consequently no person ever shaves himself. The great number of barbers is a striking feature in all towns, and sufficiently explained by the prevailing custom. They exercise the additional function of shampooing, which, with the antecedent shave, occupies altogether a considerable time. Every barber carries about with him, slung from a stick across his shoulder, all the instruments of his vocation in a compendious form. On one side hangs a stool, under which are drawers containing his instruments; and this is counterpoised at the other end by a small charcoal-furnace under a vessel of water which it serves to heat. Their razors are extremely clumsy in appearance, but very keen and efficient in use. It is not the custom for the men to wear mustaches before forty years of age, nor beards before sixty. These generally grow in thin tufts, and it is only in

a few individuals that they assume the bushy appearance observable in other Asiaticks.

The women would frequently be very pretty, were it not for the shocking custom of daubing their faces with white and red paint, to which may be added the deformity of cramped feet. In point of health, however, this is in a great degree made up by the total absence of tight-lacing, and of all ligatures and confinements whatever about the vital parts. The consequence is, that their children are all born very straight-limbed, and births are scarcely ever attended with disaster. Their dress is extremely modest and becoming, and, in the higher classes, as splendid as the most exquisite silks and embroidery can make it; for the Chinese certainly reserve the best of their silk manufactures for themselves. What we often choose to call *dress*, they would regard as absolute nudity, and all close-fitting to the shape as only displaying what it affects to conceal.

Unmarried women wear their hair hanging down in long tresses, and the putting up of the hair is one of the ceremonies preparatory to marriage. It is twisted up towards the back of the head, ornamented with flowers or jewels, and fastened with two bodkins stuck in crosswise. They sometimes wear an ornament representing the foong hoâng, or Chinese phœnix, composed of gold and jewels, the wings hovering, and the beak of the bird hanging over the forehead, on an elastick spring. After a certain time of life, the women wear a silk wrapper round the head, in lieu of any other dress. The eyebrows of the young women are fashioned until they represent a fine curved line, which is compared to the new moon when only a day or two old, or to the young leaflet of the willow.

Pink and green, two colours often worn by women, are confined exclusively to them, and never seen on men. The ordinary dress is a large-sleeved robe of silk, or of cotton among the poorer sort, over a longer garment, sometimes of a pink colour, under which are loose trousers, which are fastened round the ankle, just above the small foot and tight shoe. A proverbial expression among the Chinese, for the concealment of defects, is, "Long robes to hide large feet." Notwithstanding this, the Tartar women or their lords, have had the good sense to preserve the ladies' feet of the natural size. In other respects, however, they dress nearly as the Chinese, and paint their faces white and red in the same style.

[Husbandman.]

The ordinary dress of men among the labouring classes is extremely well suited to give full play to the body: it consists in summer of only a pair of loose cotton trousers tied round the middle, and a shirt or smock, equally loose, hanging over it. In very hot weather the smock is thrown off altogether, and only the trousers retained. They defend the head from the sun by a very broad umbrella-shaped hat of bamboo slips interwoven, which in winter is exchanged for a felt cap; and in rainy weather they have cloaks of a species of flags or reeds, from which the water runs as from a penthouse. A large portion of the peasantry wear no shoes, but some are furnished, particularly those who carry heavy burdens, with sandals of straw to protect the feet.

The favourite sayings and proverbs of all nations are among the best sources of information respecting their real character and condition; and with this view the reader is presented below with a collection, which has been made without any regard to arrangement or order:—

A wise man adapts himself to circumstances, as water shapes itself to the vessel that contains it.

Misfortunes issue out, where diseases enter in—at the mouth.

The errour of one moment becomes the sorrow of a whole life.

Diseases may be cured, but not destiny.

A vacant mind is open to all suggestions, as the hollow mountain returns all sounds.

When the tree is felled, its shadows disappear. (Desertion of the great by their parasites.)

He who pursues the stag regards not hares.

If the roots be left, the grass will grow again (Reason given for exterminating a traitor's family.)

Relaxation above produces remissness below. (In authority.)

The gem cannot be polished without friction, nor man perfected without adversity.

What is told in the ear is often heard a hundred miles off.

A wise man forgets old grudges.

Riches come better after poverty, than poverty after riches.

A bird can roost but on one branch; a mouse can drink no more than its fill from a river. (Enough is as good as a feast.)

When the pool is dry, the fish will be seen. (When accounts are settled, the balance of profits will appear.)

You cannot strip two skins off of one cow. (There is a limit to extortion.)

What cannot be told had better not be done.

The torment of envy is like a grain of sand in the eye.

He who wishes to rise in the world should veil his ambition with the forms of humility.

Extreme delight produces its contrast.

Dig a well before you are thirsty. (Be prepared against contingencies.)

Sweet words are poison; bitter words, physick. (Flattery and reproof.)

Carelessness gives temptation to dishonesty.

Eggs are close things, but the chicks come out at last. (Murder will out.)

Better be a dog in peace, than a man in anarchy.

Letters and husbandry—the two principal professions.

A diligent pen supplies memory and thought.

ELOCUTION.

The substance of an address, delivered before a class of young gentlemen in the Clinton Liberal Institute, at the close of a course of instruction in Elocution, July 23, 1836.

BY PROFESSOR S. N. SWEET.

YOUNG GENTLEMEN: Being about to take my leave of you for the present, I am happy to bear testimony to the good attention you have given, and the proficiency you have made in the science and art of elocution. But, whatever may be the point to which you have already pushed your instruction, think not, for a moment, that nothing remains to be done. It is related of Dr. Rush, that several young physicians were once conversing in his presence, and one of them said: "When I finished my studies——" "When you *finished* your studies!" said the doctor abruptly; "why you must be a happy man to have finished so young; I do not expect to finish mine while I live." You have just entered upon the career of improvement. You have much to learn and do, ere you can become good elocutionists.

"The wide, th' unbounded prospect lies before you."

The Greeks were right in saying that "the gods sell every thing to labour." Let your motto, then, be, *persevere*. Strong in your determinations from a consciousness of the adaptation of the means of which you now have a knowledge, to the purpose of improvement in elocution, and animated in your efforts by the approbation of men of taste and intelligence, wherever they may be found, go forward and never

"Bate a jot
Of heart or hope; but still bear up, and steer
Right onward."

Indulge in no regrets that your portion of human existence was not allotted to you in ancient Greece or Rome. We live in a country, the government of which, recognises in every citizen, the right to form, to cherish, and to express, his own sentiments on all subjects, interesting to our common welfare: a country where the opinion of a majority prevails, and where eloquence *creates* publick opinion. If it be true, as I think it is, that some of the Greek and Roman orators addressed publick assemblies more gracefully, if not more powerfully, than Americans, or than any other men that the world ever produced, it is because they spent years, in early life, in cultivating their voices, and in improving their delivery. Demosthenes was a pupil of Plato; and so great was the ardour and diligence with which he entered on the study of elocution, under the tuition of that celebrated philosopher and traveller, that he vanquished an impediment in his speech; and, almost, in defiance of nature herself, we see him, "drag up drowned honour by the locks;" and that, too, before he reached the age of twenty-one.

Cicero, of whom it has been truly said, that his name is but another for eloquence itself, practised recitation, for a long time, under the greatest tragedian among his contemporaries. His productions have stood the test of criticism for ages; and are every where received as the standard of Latinity. The names of these two unrivalled orators, will be for ever sweet in the mouths of all who worship at the altar of Hermes.

If I am correct in believing in the superiority of Athenian and Roman oratory over British and American, it does not necessarily follow that modern times have produced no orators at all. England has had a Sheridan, a Pitt, a Canning, and a Fox; and America can boast of a Henry, a Wirt, a Webster, a M'Duffie, a Clay, and a Preston. There are several senators and representatives in Congress, with whose mode of speaking I have been very much delighted. There are others who have yet to learn the first principles upon which good speaking is founded. If you wish to listen to the best speakers in the Union, go into the senate-chamber at Washington; if, on the other hand, you are made of "stern stuff enough," to wish to hear the English language literally murdered, by abominable "*drawlers, mouthers, mumblers, clutterers, squeakers, chanters, and mongers in monotony*," go to the same place, and occasionally step into the other house, and your anticipations will be lost in fruition.

If our national legislators had a knowledge of elocution, as it is elucidated in Dr. Rush's "Philosophy of the Human Voice," they certainly would be heard with much more attention and interest; and, I may add, they would be more useful to the country. With them, however, the time is passed, in which they would find it convenient, if disposed, to devote any special attention to elocution. The errours which they imbibed when young, they will probably cherish through life. This observation applies with equal force to lawyers and preachers. They are generally too actively employed in the performance of their professional duties to have leisure to engage in elocution exercises. Gentlemen of the legal profession, and ministers of the Gospel, in my acquaintance, especially my pupils of those professional avocations, have, in numberless instances, expressed their regrets, at their inattention to elocution in the literary institutions, or at their want of an opportunity to acquire a knowledge of it while members of seminaries of learning. It does really seem to me that there ought to be distinct professorships of elocution in all our institutions in which the higher branches of education are taught.

Were this the case, good readers and speakers would be as common as they are now rare among us. Then would the young gentlemen and ladies of the United States, give a practical exemplification that they "are of the same species of beings as Cicero." Their voices, being highly cultivated, in the school of elocution, would deepen to chords of grandeur, or be softened to cadences which would almost "suspend an angel's harmony to listen." Sweet is the musick in the notes of the birds; and, perhaps, sweeter still is the musick of the piano, and other instruments. But the best musick, to which I ever listened, is the musick of the human voice, especially when it issued from female lips.

Who that has heard Mrs. Wood, is not ready to exclaim, that her voice

——"Comes o'er the ear like the sweet South,
Which breathes upon a bank of violets,
Stealing and giving odour."

In elocution as in musick the vowel sounds should whenever the sense or sentiment requires it, be prolonged. This is called *quantity*, upon which, although it is one of the most important uses of the voice, and, next to a correct and elegant articulation, the primary beauty of reading and speaking, I will not now dwell. In the course of my lectures, you

have had audible illustrations of it, as also of the orotund—a quality of voice, or rather an assemblage of qualities which constitute the highest character of voice to which we can aspire. Its spirit-stirring notes are irresistible. It is to the ear, what proper and animated gestures are to the eye. Those who have this power of voice, can communicate their thoughts and feelings appropriately and impressively before large assemblies and in the social circle. In its perfection, it is so completely under the command of the will, that it resembles "sometimes the *thunder* and sometimes the *musick* of the spheres." In short, it is as much superiour to the natural voice, as the sun outshines the stars. It falls with such distinctness upon the ear, that its notes may be heard by at least forty thousand people.

Let it not be supposed that I think art is every thing in elocution, and nature nothing. None to whom nature has not given original and powerful minds, are destined to excel in the higher walks of oratory. She must lay the foundation, broad and deep, on which for art to build the superstructure. But whatever may be the natural talent, oratorical pre-eminence is unattainable, without laborious and successful efforts to improve upon it. No professor of elocution can describe in so many words, what is the mysterious power in which true and genuine eloquence consists. He can only say that "it comes, if it come at all, like the outbreaking of a fountain from the earth."

Would you read or speak well, *follow nature*. She instructs us to enter into the spirit of what we read or utter, and to have the voice and countenance, without a moment's reflection at the time, spontaneously "conform to sentiment." "Certain sounds" says Lord Kames, "are by nature allotted to each passion for expressing it externally." To read the narrative of the blind man, and St. Paul's description of the resurrection; to speak of the turning of a top and of the bright orbs which circle their way in yonder heaven: to tell a story and attempt to pour forth

"the resistless eloquence of wo,"

in the same intonations, elevation, quantity, and inflections of voice, is as absurd as it would be to sing, were it practicable, all sentiments under heaven, in Mear or Old Hundred. Such a mockery of nature and gross departure from the principles of elocution, would *offend* even David Crockett, were he living, "to the very soul." Had he heard, for instance, Milton's apostrophe to light, and the meeting of Satan, sin and death, on the oblivious pool, or Woolsey's farewell to greatness, and King Henry's speech at Harfleur, read or recited in the same monotonous manner, he would, I presume, notwithstanding, he thought "*larning* to be pretty much a thing of nothing," have been more "*skirt*" than when he "sawed a great etarnal big caravan of wild varments." * * *

But seriously, I deem it proper to remark, that the cold, sing-song and bungling manner, in which many preachers and professors of religion have presented that solemn and surpassingly important subject to the world, is owing to their ignorance of elocution and their want of those *feelings* with which the Gospel inspires all who believe and practise its precepts. Religion would suffer less in this way, if its promulgators had humility enough, to learn wisdom from the folly, if you please, of the practitioners of the histrionick art.

Clairon, the great French tragick actress, when complimented for playing her part well, exclaimed: "Had I not felt like Dido, I could not have thus personified her." The reason the church is less crowded than the theatre, is because the preacher delivers "truth as if it were falsehood, and the actor falsehood as if it were truth."

A speaker should, like Garrick, "go out of himself," and think of nothing but his subject. He ought to be so familiar with elocution, as to display its graces without any effort. So surely as an individual *thinks* of his elocution or grammar at the time he is speaking, just so sure will he fail of producing any other effect upon his hearers, than to convince them that he takes little or no other interest in the subject-matters of his discourse. As a bird, when taken from the illimitable fields of nature, and deprived of the air and foliage of the forest, loses the brilliancy of its plumage, so, the slightest appearance of being governed by rules, *withers* all eloquence.

But I need not thus speak to you. The recitations which you have been giving with me, from some of the best ancient and modern authors, instead of producing formality, cannot otherwise than give you freedom from constraint. Hudibras says:

"That all a rhetorician's rules,
Teach only how to *name* his tools;"

but there are in elocution, certain general rules, a knowledge of which will enable us to *use* these tools with dexterity and energy. A writer of distinguished abilities very justly defines education to consist "in learning what makes a man useful, respectable, and happy, in the line for which he is destined." Whatever may be the line for which you are destined, gentlemen of the class, let your minds embrace a wider range than the limited pursuits of any profession. Endeavour, or rather aspire,

"To make your own the mind of other men,
The enlightener of nations."

Obtain all the knowledge you can of history, poetry, philosophy, and the science of government. Learn, in the Olympick games of politics and law, to grapple in successful controversy, with men of powerful minds. Explore the depths of the writings of the "Swan of Avon," and, in those characters which Shakspeare alone could have sketched, "behold your own image." See there, "in apprehension, how like a God," is man! See, too, how frail we are, and how precarious is the tenure by which we hold this fleeting and feverish existence. Who can tell, when he awakes to the splendours of a summer's dawning, how soon the brightness of the sky may be overclouded. When we "sleep in dull cold marble," our hearts, which now sympathize with those around us, will no longer beat, even with wishes, for our country's good. But while we do live, let us do all that, in our day and generation may be done, for the promotion of man's happiness in his home on earth, and at his home in heaven.

Upon us devolves the responsibility of perpetuating the existence of our representative republick, that it may be inherited by posterity, while it "rejoices the departed souls of its founders." Being

convinced that a citizen may buckle on the armour of patriotism, during life to no purpose, if he cannot express, at least intelligibly, his conclusions; let us cultivate the noble science and art of elocution. Be it ours to aid its friends in placing it upon that elevated ground in the United States, which it occupied in Greece and Rome, during the flourishing ages of those bright republicks.

FIELDS OF POLAR ICE.

Of the inanimate productions of Greenland, none, perhaps, excites so much interest and astonishment, in a stranger, as the ice in its great abundance and variety. The stupendous masses known by the name of ice-islands, floating-mountains, or icebergs, common to Davis's straits, and sometimes met with here, from their height, various forms, and the depth of water in which they ground, are calculated to strike the beholder with wonder; yet the fields of ice, more peculiar to Greenland, are not less astonishing. Their deficiency in elevation, is sufficiently compensated for by their amazing extent of surface. Some of them have been observed near a hundred miles in length, and more than half that breadth; each consisting of a single sheet of ice, having its surface raised in general four or six feet above the level of the water, and its base depressed to the depth of near twenty feet beneath.

The occasional rapid motion of fields, with the strange effects produced on any opposing substance, exhibited by such immense bodies, is one of the most striking objects this country presents, and is certainly the most terrifick. They not unfrequently acquire a rotary movement, whereby their circumference attains a velocity of several miles per hour. A field thus in motion coming in contact with another at rest, or more especially with a contrary direction of movement, produces a dreadful shock. The weaker field is crushed with an awful noise; sometimes the destruction is mutual; pieces of huge dimensions and weight are not unfrequently piled upon the top, to the height of twenty or thirty feet, while doubtless a proportionate quantity is depressed beneath. The view of those stupendous effects *in safety*, exhibits a picture sublimely grand; but where there is danger of being overwhelmed, terrour and dismay must be the predominant feelings.

On arriving at the point of collision, between two immense bodies of ice, I discovered that already a prodigious mass of rubbish had been squeezed upon the top, and that the motion had not abated. The fields continued to overlay each other with a majestick motion, producing a noise resembling that of complicated machinery, or distant thunder. The pressure was so immense that numerous fissures were occasioned, and the ice repeatedly rent beneath my feet. In one of the fissures I found the snow on the level to be three and a half feet deep, and the ice upward of twelve. In one place hummocks had been thrown up to the height of twenty feet from the surface of the field, and at least twenty-five feet from the level of the water; they extended fifty or sixty yards in length, and fifteen in breadth, forming a mass of about two thousand tuns in weight.

The majestick unvaried movement of the ice, the singular noise with which it was accompanied, the tremendous power exerted, and the wonderful effects produced, were calculated to excite sensations of novelty and grandeur in the mind of even the most careless spectator.

Sometimes, these motions of the ice may be accounted for. Fields are disturbed by currents, the wind, or the pressure of other ice against them. Though the set of the current be generally towards the southwest, yet it seems occasionally to vary; the wind forces all ice to leeward with a velocity nearly in the inverse proportion to its depth under water; light ice consequently drives faster than heavy ice, and loose ice than fields; loose ice, meeting the side of a field in its course, becomes deflected, and its reaction causes a circular motion of the field. Fields may approximate each other from three causes; first, if the lighter ice be to windward, it will, of necessity, be impelled towards the heavier; secondly, as the wind frequently commences blowing on the windward side of the ice, and continues several hours before it is felt a few miles distant to leeward, the field begins to drift before the wind can produce any impression on ice, on its opposite side; and thirdly, which is not an uncommon case, by the two fields being impelled towards each other by winds acting on each from opposite quarters.

The closing of heavy ice, encircling a quantity of bay ice, causes it to run together with such force that it overlaps wherever two sheets meet, until it sometimes attains the thickness of many feet. Drift-ice does not often coalesce with such a pressure as to endanger any ship which may happen to be beset in it; when, however, land opposes its drift, or the ship is a great distance immured amongst it, the pressure is sometimes alarming. Scoresby.

Mortality of Married persons, compared with that of Single.—Of a hundred men who die,

20 to 30 years of age	2.8	married, and	31.2 single.
30 to 45 do	18.9	do	28.4 do
45 to 60 do	30.2	do	18.7 do
60 to 70 do	20.19	do	11.5 do
70 to 80 do	18.2	do	7.5 do
80 to 90 do	7.8	do	3.0 do
90 to 100 do	0.9	do	0.5 do

Thus it will be perceived, that there is an immense difference between the number of deaths of married men from twenty to thirty, and that of single men of same age, as of the former there are but 2.8, on an average, per hundred, of the latter 31.2, or thirteen times as many.

Of a hundred women who die,

From 20 to 30	7.8	are married	28.0 single
30 to 45	20.3	do	19.3 do
45 to 60	22.6	do	15.5 do
60 to 70	20.2	do	13.5 do
70 to 80	15.5	do	14.9 do
80 to 100	1.6	do	6.0 do

The difference of the mortality of married and single females, although not so great as that of the men, is nevertheless very remarkable, as the mortality of married women exceeds that of married men; owing probably to the serious and frequently mortal affections attending childbed.

The above tabular statement certainly presents a new and very strong argument in favour of matrimony.

HERCULANEUM MANUSCRIPTS.

THE Herculaneum manuscripts were found in a suburban villa, in the year 1753, in a room of small dimensions, which it is imagined had once a vaulted roof, to the strength of which has been attributed the preservation of those precious papyri. Some others are said also to have been found in a corridor or portico of the same habitation, which opened into the garden; but whether this had a vaulted roof or not, cannot be known; and that circumstance seems at least very doubtful in the instance of the library. Winckelman relates that eight hundred manuscripts were found; but from the statement of the accurate Canonico Iorio, who thoroughly examined the subject, and published the result in the year 1825, it appears that one thousand seven hundred and fifty-six were rescued from the ruins, without reckoning a considerable number which were destroyed by the workmen, who imagined that the volumes were of no more value than fragments of charcoal, and actually called the place in which they were found, the Bottega del Carbonaro.

The papyri were found, according to Iorio, ranged in presses or shelves round the sides of the room to about the height of a man, while in the centre of the floor stood a species of insulated rectangular column of books, fronting every way, not much unlike those which are frequently found, of a circular form, in the drawing-rooms of ladies in England. The papyri found in the country-house near Herculaneum, according to the Canonico Iorio, from whose essay the whole of this information is obtained, were found in a small chamber paved with mosaick, and had been arranged in presses round the walls, or in a pier in the centre. The wood all crumbled when exposed to the air; and the workmen only began to suspect the papyri were not common charcoal, when they observed the regularity of their disposition, and that one which broke into two parts had letters upon it. It must be remembered that the excavation was carried on in a deep underground passage, without the advantage of daylight.

It appears that some had stood in an erect, and others in a horizontal position; and they were accordingly crushed in both directions. None were found in two umbilici, and many were without any, as they are preserved in several ancient paintings. Instead of binding, a long strip of unwritten paper on the outside served to protect the book within. Many were found which were illegible, from having originally been written with pale ink. Some appeared to have been below the others, and to have been formed by the humidity into a hard and almost petrified substance. These were considered as quite hopeless, having become a well-united mass, scarcely to be penetrated by a needle. Others had a degree of durability equal to plumbago, and might have been used as chalks.

The papyri are only written on one side; except in a single instance, where the roll was not sufficiently long. Some were absolutely powder; and when the dust was blown away, the writing disappeared; so that the Canonico Iorio calls them the ghosts of papyri. It appears that the Latin MSS. are more difficult to unroll than the Greek; so that of two thousand three hundred and sixty-six columns and fragments already opened, only forty are Latin. The length of Greek papyri varies from eight to twelve inches. A Latin roll, besides being much thicker, often extends to sixteen. In both languages the columns or pages of writing formed compartments placed at a right angle with the length of the roll.

The papyri of the ancients were formed by pasting a variety of shreds together at right angles to each other, so that what may be called the grain of one would be opposed in its disposition to tear longitudinally by the cross fibres of the other. It is easy to conceive, that when the damp of some centuries has thoroughly penetrated the whole mass of a volume, a fresh difficulty arises in the unrolling; as what was originally a coating, only used to add substance to the paper, may now peel off for the operator instead of the inscribed face. Sir Humphrey Davy, who employed himself a short time in observing the effects of a new process for unrolling the papyri, seemed to think they were not carbonized, and that the colour and substance produced by time resulted solely from humidity. That gentleman did not efface the characters by his process, as has been asserted on the spot; but, on the contrary, in the presence of the author, who was employed to copy the fragment, frequently added much to the brilliancy of letters scarcely discernible.

Some of the manuscripts have been opened with so much difficulty, that it was found absolutely necessary to destroy the visible column, after having most carefully copied it, in order to arrive at the next; and the care, the patience, and the peculiar talent necessary in the process, are such, that those only who see it, and are aware of what has been done, can judge of the merit of those who are employed, and who are often accused of negligence and apathy by the passing traveller.

Of the papyri, three hundred and seventy-one were entire; sixty-one were nearly perfect; one hundred and sixty-one wanted about one third of each roll. Of fragments, one thousand three hundred and twenty-four were found; and of those which had only the exteriour perfect, four hundred and seventy-four were discovered; but these had been cut half through, longitudinally, in order to discover their contents, their respective centres having been carefully preserved for a future opportunity; three hundred and twenty-two volumes have been already tried, and of five hundred and forty-two taken from the shelves for the purpose of unrolling, two hundred and ten are well and neatly done; one hundred and twenty-seven are in a great measure finished, and two hundred and five remain in the presses at the museum, which are considered as hopeless.

Of some MSS., the title only is as yet known, which was written in a larger character. A person named Papira, in the year 1786, endeavoured to open three of the MSS. Sir Humphrey Davy is said to have had twenty placed at his disposal. Twenty were sent to England, among which were several of those petrified and useless; Mr. Sickler destroyed some of these in the attempt to open them; Mr. Hayter, who was sent by his royal highness the prince of Wales, in the year 1800, to Naples, is said to have tried one hundred and ninety-five fragments of the papyri, and to have been five years employed in unrolling them.

ILLUSTRATIONS OF SCRIPTURE.

[Gopher-wood—*Cupressus sempervirens.*]

In the sixth chapter of Genesis, and fourteenth verse, we find the expression, "Make thee an ark of gopher-wood." The gopher-wood is generally admitted by naturalists to denote a tree of the cypress family, of which there are six species. The first, the *cupressus sempervirens*, is by far the most beautiful. It has an upright, straight stem, closely branching all around almost from the bottom upward into numerous quadrangular branches; rising in the different varieties from fifteen to forty or fifty feet in height, and very closely garnished with small, narrow, erect, evergreen leaves, while the flowers and fruit appear on the sides of the branches.

The wood of this species, is said to resist worms, moths, and putrefaction, and to last many centuries. The coffins in which the Athenians were wont to bury their heroes, were made, (says Thucidides,) of this wood, as were likewise the chests containing the Egyptian mummies. The doors of St. Peter's church, at Rome, were originally of the same material. These after lasting upward of six hundred years, at the end of which, they did not discover the smallest tendency to corruption, were removed by order of Pope Eugenius IV., and gates of brass substituted in their places. The same tree is by many eminent authors recommended as improving and ameliorating the air by its balsamick and aromatick exhalations: on this account, many ancient physicians of the eastern countries, used to send their patients, who were troubled with weak lungs, to the island of Candia, where these trees grew in abundance, and where, from the salubrious air alone, many recovered their health. In the same island, (says Miller,) the cypress-trees were so lucrative a commodity, that the plantations were called the "*daughter's dowry.*" The selling of one of them being reckoned a daughter's fortune. Cypress, (says Mr. Pococke,) is the only tree that grows toward the top of mount Lebanon, and being nipped by the cold, grows like a small oak.

[Turpentine-tree—*Pistachia terebinthus.*]

In the twelfth of Genesis, and the sixth verse, we find the expression, "the plain of Moreh," or rather the terebrinth-tree of Moreh. The word which is here translated, plain, and in other places, oak, is generally considered to denote the terebrinth, or turpentine-tree. The *Pistachia terebinthus*, stands as the head and representative of a numerous family of trees, most of which are noted for the fragrant resins which they yield. The branches of this tree are large, and diffusive; the foliage a deep green, interspersed with clusters of reddish white flowers. It grows naturally, in Arabia, Persia, and Syria, whence the nuts are annually brought to Europe. In these countries, it attains the height of twenty-five or thirty feet. The bark of the stem and old branches, is of a dark russet colour, but that of the young branches, is of a light brown.

Pistachio nuts are moderately large, containing a kernel of a pale greenish colour, covered with a reddish skin. They have a pleasant, sweet, unctuous taste, resembling that of almonds, and they abound with a sweet and pleasant tasted oil, which they yield in great abundance, by pressing, after bruising them. They are wholesome and nutritious, and are by many considered as very valuable to persons recovering from severe sickness.

The best Venice turpentine, which, when it can be obtained in a genuine state, is superiour to all the rest of its kind, is the produce of this tree.

A peculiar light.—Moses says, that the light was first formed, and that was the first day. On the third day after this, the sun and moon were formed. As we have now no light but what comes either from the sun itself, or by reflection from the moon; and as there was light and also day and night before the sun and moon were formed, we must infer, that the day here mentioned must have been of a different character from our day, and that this light had a different source from an immediate communication with the sun. We may therefore conclude, that during the incipient formation of our planet, it possessed a light peculiar to its own constitution.

MISCELLANY.

SHARK-FISHING.

Shark-fishing is an amusement which is sometimes practised on our coast, but is confined, we believe, to a few amateurs. A large hook is provided, about a foot in length, and baited with a black-fish, the skin of which is stripped off, in order that the whiteness may attract the notice of the shark. To the hook is fastened an iron chain, about three feet long, and to the end of this is attached the line. The bait is let down in the water to the depth of about twelve feet. If the fish is near, he seizes it, with all the greediness of a modern monopolist, and darts away with it. The person holding the line, suffers him to run a rod or two with the hook, and then pulls it back with a strong and sudden jerk, in order to fasten it in the huge mouth of the creature. He is then pulled up to the boat, where his head is brought firmly against the gunwale, and another person standing near with a club, belabours him on the head until he is lifeless, and he is then drawn into the bottom of the boat. The strength and violent struggles, and loud blowing of the shark, together with the idea of destroying a creature so dangerous to man, make the sport exceedingly animated and exciting.

A party from this city were landed the other day from the steamboat Lexington, at Faulkner's island, for the purpose of enjoying this amusement. Faulkner's island, situated off Guilford point, as our readers doubtless know, belongs to the United States; and its four acres of land, rising about forty feet above the water, are crowned with a lighthouse, kept by Mr. Kimberly, an obliging friendly man, who received his visiters with much hospitality. They were taken in a boat to Goose island, belonging to Mr. Kimberly, lying at the distance of a mile, with about a quarter of an acre of coarse vegetation upon it, among which myriads of gulls make their nests. On the approach of a strange boat, these birds rise in a cloud, which fairly darkens the sky, wheeling about in circles, and filling the air with their screams. They are never suffered to be shot, on account of their use to such as navigate the sound in foggy weather, when their screaming, or the flight of such of them as happen to come in sight, serves to indicate the place of the island they inhabit. The boat was anchored off Goose island, the baits were prepared and dropped into the water, and as it fortunately happened that a shoal of sharks were near the spot, the sport was pursued with the greatest success. In the course of an hour and a half, six of these large animals, from five to seven feet in length, were caught, despatched, and hauled into the boat, amidst their fierce struggles, the splashing of the water, and their strong breathing, which almost amounted to bellowing. One of them when brought up to the gunwale of the boat, made a sudden leap, and threw his whole length into the bottom of the boat, knocking down and overlaying some of the party, and striking the leg of one of them with his tail so violently, as almost to break the limb. About twelve others were hooked, but broke away. The sharks seemed to enjoy the sport almost as much as those who were engaged in catching them. They came around the boat in great numbers, and seemed eagerly to wait their turn of taking the bait.

At a place called East bank, about a mile and a half to the east of Faulkner's island, where the water is deeper than near the shore of Goose island, sharks of a larger size are often caught. One of the party, a few years since, hooked in this place, a shark twelve feet in length, which dragged his boat for the distance of half a mile. Another boat coming to his assistance, the enormous creature was hauled up, despatched, and brought to land.

N. Y. Evening Post.

FATA-MORGANA.

This singular illusion, which the vulgar among the Italians attribute to a fairy, and which, in France, bears the name of *Mirage*, is produced, in a variety of situations, by light vapours, which present almost every imaginable variety of appearance. Seen from sea, they cheat the eye of the wearied seaman with the similitude of vast forests, and noble towns, and delude him into a brief and fallacious belief that he is at length approaching the long-wished-for land, to rest his wearied frame, and pass from a state of severe privation to one of plenty: while to him who toils his sad way along the arid sands of the desert, they seem to be a vast lake of water, and entice him onward, only to dash his hopes to the ground, at the moment when he fancies them about to be realized.

An Italian writer, quoted in "Swinburne's Tour in Sicily," thus describes this illusion:—

"On the fifteenth of August, 1813, I was surprised, while standing at my window, with a most wonderful and delectable vision. The sea that washes the Sicilian shore, swelled up, and became, for ten miles in length, like a chain of dark mountains; while the waters near the Calabrian coast, grew quite smooth, and, in an instant, appeared as one clear polished mirror, reclining against the aforesaid ridge. On this glass was depicted, in *chiaro scuro*, a string of several thousands of pilasters, all equal in altitude, distance, and degrees of light and shade. In a moment, they lost half their height, and bent into arcades, like Roman aqueducts A long cornice was next formed on the top, and above it rose castles innumerable, all perfectly alike These soon split into towers, which were shortly after lost in colonnades, then in windows, and at last, ended in pines, cypresses, and other trees, even and similar. This was the Fata-Morgana, which, for six-and-twenty years, I had thought and spoken of as a mere fable."

EFFECT OF FRIGHT.

An English paper furnishes another illustration of the fatal effects of terrifying children, in order to punish them for misconduct. A little girl, only six or seven years of age, whose parents resided at Hackney, for some act of childish disobedience, was thrust into a dark cellar at some distance from the house, and suffered to remain there throughout the night; the dreadful cries and screams which the child uttered, produced no effect upon her imprudent preceptors, and when the door was opened in the morning, the poor child was an idiot. A medical man, who was instantly summoned, pronounced her recovery extremely doubtful.

USEFUL KNOWLEDGE.

To wash Iron or Steel with Gold.—Mix together in a vial one part of nitrick acid, with two parts of muriatick acid and add as much fine gold as the acid will dissolve. For this purpose gold-leaf is the most convenient, as it will be the most readily dissolved. (This solution is called the muriate of gold.) Pour over this solution, cautiously, about half as much sulphurick ether—shake the mixture, and then allow it to settle. The ether will take the gold from the acid, and will separate itself from it also, and form an upper stratum in the vial. Carefully pour off this auriferous ether into another vial, and cork it close. Wash any piece of steel or iron with this ether, and immediately plunge it in cold water, and it will have acquired a coat of pure gold. With this also, any flowers or letters may be drawn or written even with a pen, and will appear perfectly gilt. The steel or iron should afterward be heated as much as it will bear without changing colour, and if the steel be previously polished, the beauty of the gilding may be much increased by burnishing with a cornelian or blood-stone.

To wash Brass or Copper with Silver.—To half an ounce of nitrick acid in a vial, add one ounce of water, and one fourth of an ounce of good silver. It will soon be dissolved, and if the acid and metal are both pure, the solution (which is called nitrate of silver) will be transparent and colourless. Add to this a solution of nearly two drachms of muriate of soda, in any quantity of water; this will precipitate the silver in a white opaque mass. Pour off the water with the acid, and add to the silver an equal quantity of super-tartrate of potass, thus forming a soft paste; dip a piece of soft leather in this paste, and rub it on the metal to be silvered; continue rubbing it till it is nearly dry; then wash it with water, and polish by rubbing it hard with a piece of dry leather. Another method is, to add sub-carbonate of potass to the nitrate of silver, as long as ebullition ensues; then the acid is poured off, and the precipitate (which is white at first, but becomes green when dry) is mixed with double its quantity of muriate of soda, and super-tartrate of potass. With this composition, being moistened, the metal is rubbed over, &c.

To give Wood a Gold, silver, or Copper Lustre.—Grind about two ounces of white beach sand in a gill of water, in which half an ounce of gum-arabick has been dissolved, and brush over the work with it. When this is dry, the work may be rubbed over with a piece of gold, silver, or copper, and will in a measure, assume their respective colours and brilliancy. This work may be polished by a flin -burnisher, but should not be varnished.

To write on White Paper with Gold or Silver.—Make a sizing as strong as will flow freely from the pen, by dissolving equal quantities of gum-arabick and loaf sugar in water; write with this on paper and let it dry; then moisten the paper by breathing on it, or by holding it over hot water, and immediately lay pieces of gold or silver leaf on the lines of the writing, pressing them down gently with a dry hair pencil. Otherwise, brush gold or silver bronze lightly over the writing; but this will not have so brilliant an appearance. Allow the sizing to dry again, and then brush off the redundant gold or silver with cotton. This writing, (if performed with leaf gold or silver) may be burnished with a flint-burnisher or a cornelian or blood-stone. Gold letters may also be written or drawn with a hair pencil by means of gold bronze, mixed with weak gum water, to which may be added a little solution of soap, which will make it run more freely. But no preparation of solution of gold has yet been discovered, which may be easily revived on paper.

Best Method of Polishing Steel.—For this purpose a wheel must be provided that is perfectly round, and the rim of it covered with deer-skin, or buff-leather. The diameter of the wheel, for common purposes, may be about two feet; but for polishing razors, and some other similar instruments, the wheel should not be more than five or six inches in diameter, and two inches thick. The steel must first be ground smooth as possible on a common or fine grained stone; it may then be applied to the polishing wheel, which must be turned with such velocity that the surface, or rim, may move at the rate of from forty to sixty feet in a second; and the leather must frequently have a powder applied, called crocus of iron, which is prepared by calcining sulphate of iron in a crucible till it becomes a fine red oxyde resembling rust. For ordinary work, the leather may be moistened with olive oil, that it may the better retain the powder, but it will give a more perfect polish if kept dry. If any perfectly plane surfaces, such as mirrors, are to be polished, they must be applied to the sides of a wheel, and not to the edge or rim, in the manner of other work.

To make Letters or Flowers on Polished Steel.—Hold the steel over a charcoal fire till it becomes blue; let it cool. Then with equal parts of rosin and bees-wax, melted together, coloured a little with lampblack, and diluted with spirits of turpentine, so as to work freely with a camel's-hair pencil, draw any letters or figures on the steel, while it is a little warm. When the steel has become cold, wash it over with muriatick acid, diluted with two parts to one of acid; you thus take off the blue colour, and then wash it with clear water. Afterward, the varnish, being warmed a little, may be readily washed off with spirits of turpentine, and the letters or flowers will remain blue.

If letters are formed on polished steel with this varnish, and the body of the metal be also covered with it, except a small space round the letters, and then bathed with muriatick acid, the space round the letters will become a dull iron colour, while the letters and the body of the steel will retain their polished surface and brilliancy.

To make Elastick Varnish for Umbrellas and Hat-Cases.—To a pint of spirits of turpentine, in a flask, add one ounce of gum-elastick, cut into very small pieces; put in the cork slightly and set the flask in a warm place, where the heat may not be equal to that of boiling water, till the gum-elastick is dissolved, which may be effected in four or five hours. Then strain the solution through a strong linen or cotton cloth, and add half a pint of boiled linseed oil

LITERARY NOTICES.

Since the publication of our last number, we have received one or two books which are extremely important, as contributing something to the future history of our country. The first of these is entitled :—

The Religious Opinions and Character of Washington. By E C. Mc Guire. "A Christian is the highest style of man." New York: Harper & Brothers. This is a duodecimo of about 400 pages, and is one of the most interesting as well as intrinsically valuable books we have ever read. Its object is twofold; first, to disprove and do away the untruth that has been more than insinuated by some hardy unbelievers in the sublime verities of the Christian dispensation, that George Washington was himself almost a skeptick; and second, to show forth his character in its true, pure and glorious light, as that of an eminently pious, sincere and faithful Christian, whose profession and practice were openly and uniformly those of a sincere and devout believer. In the performance of his undertaking—and every one must feel and know, how noble a task it is—the author has collected and arranged such a mass of evidence, gathered almost exclusively from the writings of Washington himself, as no subtlety of skeptical investigation can impugn, even to the substance of a hair. It is complete, perfect and invisible, and places the character of our Washington before the world in an attitude more noble and more approaching to perfection, than it has ever before assumed.

Memoirs of Aaron Burr, with Miscellaneous Selections from his Correspondence. By Matthew L. Davis. In two volumes. New York: Harper & Brothers. Here we have the first volume of a work which has already attracted a great deal of attention; the first edition of the book having been disposed of three days after publication. The second volume will be issued in the spring. The opportunity enjoyed by Mr. Davis for writing this biography are thus stated in his preface :—

"During a period of forty years I was intimately acquainted with Col. Burr, and have reason to suppose that I possessed his entire confidence. Some time after his return from Europe in 1812, on different occasions, he suggested casually a wish that I would make notes of his *political* life. When the Memoirs and Correspondence of Mr. Jefferson were published, he was much excited at the statements which were made in his Ana respecting the presidential contest in Congress in 1801.

He procured and sent me a copy of the work, with a request that I would peruse the parts designated by him. From this time forward he evinced an anxiety that I would prepare his Memoirs, offering me the use of all his private papers, and expressing a willingness to explain any doubtful points, and to dictate such parts of his early history as I might require. These propositions led to frequent and full conversations. I soon discovered that Col. Burr was far more tenacious of his *military*, than of his professional, political or moral character. His prejudices against General Washington were immoveable. They were formed in the summer of 1776, while he resided at headquarters; and they were confirmed unchangeably by the injustice which he said he had experienced at the hands of the commander-in-chief immediately after the battle of Long Island, and the retreat of the American army from the city of New York. These grievances he wished to mingle with his own history; and he was particularly anxious to examine the military movements of General Washington on different occasions, but more especially at the battle of Monmouth, in which battle Colonel Burr commanded a brigade in Lord Stirling's division. I peremptorily refused entering upon any such discussion; and, for some time, all communication on the subject ceased.

"Colonel Burr, however, renewed the conversation relative to his Memoirs, and agreed that any thing which might be written should be confined to himself. With this understanding I frequently visited him, and made notes under his dictation. I never asked him a question on any subject, or in relation to any man or measure, that he did not promptly and willingly answer. On his part there was no desire of concealment; nor did he ever express to me a wish to suppress an account of his whole life. So far as I could judge, his only apprehensions were that '*kind friends*,' as he sometimes termed them, by attempts at explanation, might unintentionally misrepresent acts which they did not understand.

"I devoted the summer of 1835 to an examination of his letters and papers, of which there is an immense quantity. The whole of them were placed in my hands, to be used at my discretion. I was authorized to take from among them whatever I supposed would aid me in preparing the contemplated book."

The volume now before us embraces, in addition to the details in regard to Burr's early life and education, an extensive sketch of his military life and services; it also presents us with an immense mass of correspondence of some of the most distinguished in our country.—These alone are very valuable. Mr. Davis although the biographer of Colonel Burr, has not attempted in the least to offer an apology for that vice which sullied his character, and which, be his virtues what they may, can never be overlooked or forgotten. On this subject, Mr. Davis remarks :—

"Major Burr, while yet at college, had acquired a reputation for gallantry. On this point he was excessively vain, and regardless of all those ties which ought to control an honourable mind. In his intercourse with females he was an unprincipled flatterer, ever prepared to take advantage of their weakness, their credulity, or their confidence. She that confided in him was lost. In referring to this subject, no terms of condemnation would be too strong to apply to Colonel Burr.

"It is truly surprising how any individual could have become so eminent as a soldier, as a statesman, and as a professional man, who devoted so much time to the other sex as was devoted by Colonel Burr. For more than half a century of his life they seemed to absorb his whole thoughts. His intrigues were without number. His conduct most licentious. The sacred bonds of friendship were unhesitatingly violated when they operated as barriers to the indulgence of his passions. For a long period of time he seemed to be gathering, and carefully preserving, every line written to him by any female, whether with or without reputation; and when obtained, they were cast into one common receptacle—the profligate and corrupt, by the side of the thoughtless and betrayed victim. All were held as trophies of victory—all esteemed alike valuable. How shocking to the man of sensibility! How mortifying and heart-sickening to the intellectual, the artless, the fallen fair!

"Among these manuscripts were many the production of highly cultivated minds. They were calculated to excite the sympathy of the brother—the parent—the husband. They were, indeed, testimonials of the weakness of the weaker sex, even where genius and learning would seem to be towering above the arts of the seducer. Some of these productions had been penned more than sixty years. They were all committed to the flames, however, immediately after the decease of Colonel Burr. Of them, it is believed, 'not a wreck remains.'"

The Pilgrim's Progress. With a Life of John Bunyan, by Robert Southey, Esq., LL. D. *Illustrated with fifty cuts by Adams. After designs, by Chapman, Harvey, and others.* Here we have a new and very beautiful edition of a book, which has long been a favourite, and a deserved one too, of the religious world. To descant upon the book itself, is perfectly unnecessary, as the name and works of Bunyan are in the mouth of every one. This edition, however, deserves especial notice, for several reasons. First, it contains, in addition to the Pilgrim's Progress, a very full biography of the author, by no less a person than the poet laureate of Great Britain, Robert Southey, with a specimen of Bunyan's handwriting, and his autograph, next we have fifty cuts, executed by Adams in his best style, after drawings by Chapman, Harvey, and others. To Chapman belongs the credit of the frontispiece, which is a gem in its way, and is the first specimen of the kind ever executed in this country, the wonderful effect of it, depending upon its being printed in two colours. This and the portrait of the author, are beautiful, and are equal to fine steel engravings. Lastly, the book is well printed, and the cuts are particularly, fine. Added to all these, the neatness of the binding, and the moderate price at which it is afforded, commend it to publick patronage.

The Chinese—a general Description of the Empire of China, and its Inhabitants. By John Francis Davis, Esq. In two volumes, with numerous illustrations. Harper & Brothers. These volumes form the 80th and 81st numbers of Harper's Family Library. They present by far the best picture of China which has yet been offered to the American publick, and are a happy edition to the valuable series of books issued in the Family Library.

A New Hieroglyphical Bible, with Devotional Pieces for Youth. Containing 400 cuts by Adams. New York: Harper & Brothers. The Hieroglyphick Bible is a pretty puzzle for the ingenuity of our young readers, and the little rhymes are quite an addition to the book, which is executed in fine style, ornamented with two of Chapman's designs, which are richly worth the price of the volume. These are the Conversion of St. Paul, and a little picture entitled Eli and Samuel—both of which are admirably engraved by Adams.

DEFEAT OF GENERAL BRADDOCK—9th July, 1755.

DEFEAT OF GENERAL BRADDOCK—9th July, 1755

DEFEAT OF GENERAL BRADDOCK.

The frontispiece of the present number of the Family Magazine, represents the defeat of General Braddock. The artist, Mr. J. G. Chapman, has selected for the subject of his design, the moment that General Braddock is carried from the field mortally wounded; Lieutenant Washington assuming the command, and with his Virginia troops, covering the retreat of the British, and saving the corps from utter annihilation. The best narrative of the action that we can present, is contained in the interesting Life of Washington, by that distinguished author, J. K. Paulding, from which we quote as follows:—

General Braddock had landed at the capes of Virginia, and proceeded to Williamsburgh, the seat of government, where he consulted with Governour Dinwiddie. He inquired for Colonel Washington, with whose character he was well acquainted, and expressed a wish to see him. On being informed of his resignation, and the cause, he is said to have exclaimed, that "he was a lad of sense and spirit, and had acted as became a soldier and a man of honour." He immediately wrote him a pressing invitation to assume the situation of volunteer aidde-camp, which involved no question of rank, and which, after consultation with his family, was accepted. Washington once more resumed his military career, by joining the British forces at Belhaven.

These were shortly after reinforced by three companies of Virginia riflemen, raised by an act of the legislature, and consisting of as brave hardy spirits as ever drew a trigger. This accession made the army about two thousand strong, and with these, in the month of June, 1755, Braddock set forth in his march through the wilderness, from whence he and many others of his companions never returned.

The troops under Braddock marched in two divisions to the old station at the Little meadows. On the way, Washington was attacked by a fever, and became so ill, that the commanding officer insisted upon his remaining until the rear of the army came up under Colonel Dunbar. He consented, much against his will; but the instant he was able, pushed on and joined Braddock the evening before he fell into that fatal ambuscade, where he perished with many other gallant spirits, not in a blaze of glory, but in the obscurity of the dismal forests.

Washington, on rejoining the army, urged upon General Braddock the necessity of increasing and incessant caution. He dwelt much on the silent, unseen motions of the warriours of the woods, who come like birds on the wing, without being preceded by any indications of their approach, or leaving a trace behind them. But the fate of Braddock was decreed; or rather, his own conduct sealed that destiny which ever follows at the heels of folly and imprudence. He despised the advice of wisdom and experience, and bitterly did he suffer the penalty. The silly pride of a British officer disdained the lessons of a provincial youth, who had never fought on the bloody plains of Flanders. There can be no doubt that the superiority affected by the natives of England over those of the American colonies, was one of the silent yet effective causes of the Revolution.

The army halted at Cumberland, for some days, and then proceeded to its ruin. Contrary to the advice of Washington, who wished to lead with his Virginians, the British grenadiers marched in front, about half a mile ahead; the Virginia troops followed; and the rest of the army brought up the rear. The ground was covered with whortleberry bushes reaching to the horses' bellies, until they gained the top of a hill, which commanded an extensive prospect far ahead. Here a council was held, during which, the traditionary authority I follow describes Braddock as standing with a fusee in his right hand, the breech on the ground, and rubbing the leaves with his toe, as if in great perplexity, without saying a word.

The consultation over, they proceeded onward through the deep woods, the order of march being changed, and the infantry in advance. When within about seven miles of Fort Duquesne, and passing through a narrow defile, a fire from some ambushed enemy arrested their march, and laid many a soldier dead on the ground. Nothing was seen but the smoke of the unerring rifle rising above the tops of the woods, and nothing heard but the report of the fatal weapons. There was a dead silence among the savages and their allies, who, masked behind the trees, were equally invisible with the great king of terrours, whose work they were performing.

The army of Braddock, and the general himself, were both taken by surprise, and the consequence was, a total neglect or forgetfulness of the proper mode of defence or attack.

The army of Braddock suffered a total defeat. The survivors retreated across the Monongahela, where they rested, and the general breathed his last. His gallant behaviour during the trying situation in which he was placed, and his death, which in some measure paid the penalty of his foolhardihood, have preserved to his memory some little respect, and for his fate perhaps more sympathy than it merited. He was one of those military men of little character and desperate fortune, which mother-countries are accustomed to send out, for the purpose of foraging in the rich fields of their colonies. He was succeeded in his command by Colonel Dunbar, who ordered all the stores, except such as were indispensably necessary, to be destroyed, and sought safety, with the remainder of his European troops, in the distant repose of the city of Philadelphia, where he placed the army in winter-quarters in the dog-days, leaving Virginia to the protection of her gallant rangers.

The conduct of the British troops on this occasion, was, though perhaps natural in the terrible and untried situation in which they were placed, such as to excite the contempt of Washington and his provincials, to whom the escape of the surviving regulars was entirely owing. It was he and they that exclusively made head against the invisible enemy, and finally so checked his proceedings, as to secure a quiet retreat to a place of security. But for them, in all probability, scarce a man would have escaped. The British officers behaved with great gallantry, and upward of sixty of them were either killed or wounded; but the privates exhibited nothing but cowardice, confusion, and disobedience; and it seems quite probable that Washington here learned a secret which was of infinite service in his future career, by teaching him that British grenadiers were not invincible.

The provincial troops, on the contrary, according to the testimony of Washington, "behaved like men," to use his own language. Out of three companies that were in the action, but thirty survived. The regulars, on the contrary, "ran away like sheep before hounds," leaving every thing to the mercy of the enemy. "When we endeavoured to rally them," continues Washington, in his letter to the governour of Virginia, "in hopes of regaining the ground we had lost, and what was left on it, it was with as little success, as if we had attempted to have stopped the wild bears of the mountain, or the rivulets with our feet."

ILLUSTRATIONS OF SCRIPTURE.

[The Olive-Tree—*Olea Europœa*]

In the olive-yards of France, the olive-tree generally attains the height of eighteen or twenty-five feet, with a diameter of six inches to two feet. It ramifies at a small height, and forms a compact rounded summit. The foliage is of a pale, empoverished verdure, and the general appearance of the tree is not unlike that of a common willow which has been lopped, and which has acquired a new summit of three or four years growth.

The main limbs of the olive are numerously divided; the branches are opposite, and the pairs are alternately placed upon conjugate axes of the limb. The foliage is evergreen, but a part of it turns yellow and falls in the summer, and in three years it is completely renewed. In the spring or early autumn, the season when vegetation is in its greatest activity, the young leaves put forth immediately above the cicatrix of the former leaf-stalks, and are distinguished by their suppleness, and by the freshness of their teint. The colour of their leaves varies in the different varieties of the olive, but they are generally smooth, and of a light green above, whitish and somewhat downy, with a prominent rib beneath. On most of the cultivated varieties, they are from fifteen lines to two inches long, and from six to twelve lines broad, narrow, with both ends acute, even and whole at the edge, placed immediately on the main stem without a foot-stalk, opposite and alternate in the manner of the branches.

The olive is slow in blooming, as well as in every function of vegetable life. The buds begin to appear about the middle of April, and the bloom is not full before the end of May, or the beginning of June.

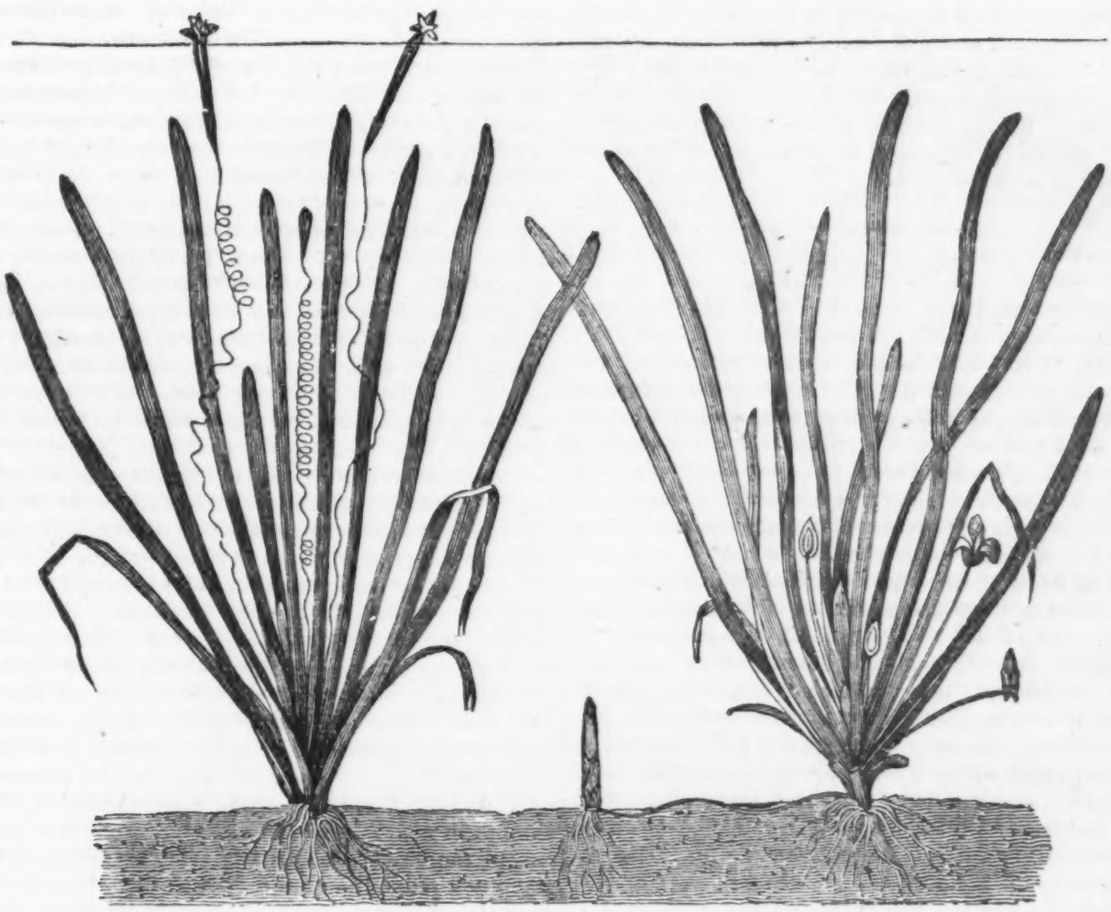
The flowers are small, white, slightly odoriferous, and disposed in axillary *racemes* or clusters. A peduncle about as long as the leaf, issues from its base, upon which the flowers are supported by secondary pedicles, like those of the common currant. Sometimes the clusters are almost as numerous as the leaves, and garnish the tree with wanton luxuriance; at others they are thinly scattered over the branches, or seen only at the extremity. It is essential to remark, that they are borne by the shoots of the preceding year.

The fruit of the olive is called by botanists a *drupe*. It is composed of pulpy matter enveloping a stone, or ligneous shell, containing a kernel. The olive is egg-shaped, pointed at the extremity, from six to ten lines in diameter, in one direction, and from ten to fifteen in the other; on the wild tree, it hardly exceeds the size of the red currant. The skin is smooth, and, when ripe, of a violet colour; but in certain varieties, it is yellowish or red. The pulp is greenish, and the stone is oblong, pointed and divided into two cells, one of which is usually void. The oil of the olive is furnished by the pulp, which is a characteristick almost peculiar to this fruit; in other oleaginous vegetables, it is extracted from the seed. The young olives, set in June, increase in size, and remain green through the summer, begin to change colour early in October, and are ripe at the end of November, or in the beginning of December. On the wild-olive, five or six drupes are ripened upon each peduncle; but on the cultivated tree, a great part of the flowers are abortive, and the green fruit is cast at every stage of its growth, so that rarely more than one or two germes upon a cluster arrive at maturity.

From its resinous and oleaginous nature, the olive-wood is eminently combustible, and burns as well before, as after it is dried. The value of its fruit renders this property unimportant. This tree may be multiplied by all the modes that are in use for the propagation of trees, and requires but little care in the cultivation, and produces fruit once in two years. This fruit, the modern Greeks, during Lent, eat in its ripe state, without any preparation, but a little pepper, or salt and oil.

But olives are chiefly cultivated for the sake of the oil that they produce, which is not a profitable article of commerce, but forms a principal one of food to the inhabitants of the places where these trees are found. This oil is contained in the pulp only, as before observed, whereas other fruits have it in the nut or kernel. It is obtained by simple pressure, in the following manner. The olives are first bruised by a millstone, and afterward put into a sack, and then into the trough of a press for the purpose, which, by means of turning a strong screw, forces all the strong liquor out, which is called *virgin oil*. It is received in vessels half filled with water, from which it is taken off, and set apart in earthen jars. Several coarser kinds are obtained afterward, by adding hot water to the bruised fruit.

Naturalist.



[The Vallisneria.]

THE VALLISNERIA, OR PLANT OF THE RHONE.

THE beautiful plant represented in the above engraving, a species of water-lily, strikingly illustrates the design evident in the peculiar adaptation of the animal or plant to the circumstances in which it is placed.

This plant consists of a small root, with a few long leaves rising from it, and in the midst of them a stalk of two or three feet in length, but so weak, that it is by no means able to support itself erect. On the top of each stalk is one single flower, in some degree resembling a single flower from a bunch of jessamine. It appears to be the purpose of Nature, and it is absolutely necessary to the well-being of the plant, that every part of it should be immersed in water, except just the flower at the top of the stalk. But these flowers must be always kept above the water; and the heat of the sun is requisite to the opening of the seeds contained in the base of them. Now the Rhone, wherein this plant grows in great abundance, is a river of very uncertain depth, and that in places very near one another: if the seeds of this plant, or the side-shoots from the roots, produce new ones at different depths, how is the flower to be carried to the top, and only just to the top of the water in each? The Rhone is also of all rivers the most apt to be swelled by sudden floods; in this case how is the plant that was just flowering in its proper manner, at four feet depth, to be kept in the necessary state of having that flower above water, when the depth is increased to six? Or how is it to be kept from falling on the surface of the water, and rotting, when the depth decreases and leaves a foot or two of naked stalk, which is unable to support itself?

All this is provided for by nature, or rather by God the Creator, who, with apparent wisdom and intention, has made the stalk which supports the flower of this plant, of such a form and texture, that it, at all times, suits itself to the depth of the water it is in; for the stalks are not straight, but twisted in a spiral form, in the manner of a corkscrew, or rather in the manner of those springs of wire, which we see made by wrapping wire round a small stick. By this formation, the stalks of the vallisneria have a power of extending and contracting themselves in length, and this so suddenly, that let the rise or fall of the water be ever so quick, the lengthening or shortening of the stalks accompanies it; and the same formation suits them in a yet easier manner to the different depths. By this formation, the like of which is not seen in any other plant in Nature, the flower of this singular vegetable is kept just at the surface of the water, be the depth what it will, or the changes in the depth ever so sudden. By these means, the sun has power to ripen the flower till the seeds are scattered on the surface of the water in perfect ripeness, where they float a little while; but when thoroughly wet, sink and take root at the bottom.

To prove to ocular demonstration what is said of this plant, several of them have been put into vessels of water, some of them with stalks so long that one half of them was above the surface of the water;

others with them so snort, that they were immersed several inches under it: but in a few hours they had each adapted the length of their stalks to the depth, and the flower of every one was floating just on the surface. Surely this is a wonderful contrivance, and speaks a language in favour of Providence, which is incontrovertible!

COD-FISHING.

ALTHOUGH I had seen, as I thought, abundance of fish along the coasts of the Floridas, the numbers which I found in Labrador quite astonished me. Should your surprise, while reading the following statements be as great as mine was, while observing the facts related, you will conclude, as I have often done, that Nature's means for providing small animals for the use of larger ones, and *vice versa*, are as ample as is the grandeur of that world which she has so curiously constructed.

The coast of Labrador is visited by European as well as American fishermen, all of whom are, I believe, entitled to claim portions of fishing-ground, assigned to each nation by mutual understanding. For the present, however, I shall confine my observations to those of our own country, who, after all, are probably the most numerous. The citizens of Boston, and many other of our eastern seaports, are those who chiefly engage in this department of our commerce. Eastport, in Maine, sends out every year a goodly fleet of schooners and "pickaxes" to Labrador, to procure cod, mackerel, halibut, and sometimes herring, the latter being caught in the intermediate space. The vessels from that port, and others in Maine and Massachusetts, sail as soon as the warmth of spring has freed the gulf of ice, that is, from the beginning of May to that of June.

A vessel of one hundred tuns or so, is provided with a crew of twelve men, who are equally expert as sailors and fishers, and for every couple of these hardy tars, a Hampton boat is provided, which is lashed on the deck, or hung in stays. Their provision is simple, but of good quality, and it is very seldom that any spirits are allowed; beef, pork, and biscuit, with water, being all they take with them. The men are supplied with warm clothing, waterproof oiled jackets and trousers, large boots, broad-brimmed hats with a round crown, and stout mittens, with a few shirts. The owner or captain furnishes them with lines, hooks, and nets, and also provides the bait best adapted to ensure success. The hold of the vessel is filled with casks of various dimensions, some containing salt, and others for the oil that may be procured.

The bait generally used at the beginning of the season, consists of muscles salted for the purpose; but as soon as the capelings reach the coast, they are substituted to save expense; and in many instances, the flesh of gannets and other sea-fowls is employed. The wages of fishermen vary from sixteen to thirty dollars per month, according to the qualifications of the individual.

The labour of these men is excessively hard, for, unless on Sunday, their allowance of rest in the twenty-four hours, seldom exceeds three. The cook is the only person who fares better in this respect, but he must also assist in curing the fish. He has breakfast, consisting of coffee, bread, and meat, ready for the captain and the whole crew, by three o'clock every morning, excepting Sunday. Each person carries with him his dinner ready cooked, which is commonly eaten on the fishing-grounds.

Thus, at three in the morning, the crew are prepared for their day's labour, and ready to betake themselves to their boats, each of which has two oars and lugsails. They all depart at once, and either by rowing or sailing, reach the banks to which the fishes are known to resort. The little squadron drop their anchors at short distances from each other, in a depth of from ten to twenty feet, and the business is immediately commenced. Each man has two lines, and each stands in one end of the boat, the middle of which is boarded off to hold the fish. The baited lines have been dropped into the water, one on each side of the boat; their leads have reached the bottom, a fish has taken the hook, and after giving the line a slight jerk, the fisherman hauls up his prize with a continued pull, throws the fish athwart a small round bar of iron placed near his back, which forces open the mouth, while the weight of the body, however small the fish may be, tears out the hook. The bait is still good, and over the side the line again goes, to catch another fish, while that on the left is now drawn up, and the same course pursued. In this manner, a fisher busily plying at each end, the operation is continued until the boat is so laden, that her gunwale is brought within a few inches of the surface, when they return to the vessel in harbour, seldom distant more than eight miles from the banks.

During the greater part of the day, the fishermen have kept up a constant conversation, of which the topicks are the pleasure of finding a good supply of cod, their domestick affairs, the political prospects of the nation, and other matters similarly connected. Now the repartee of one elicits a laugh from the other; this passes from man to man, and the whole *flotilla* enjoy the joke. The men of one boat strive to outdo those of the others in hauling up the greatest quantity of fish in a given time, and this forms another source of merriment. The boats are generally filled about the same time, and all return together.

Arrived at the vessel, each man employs a pole armed with a bent iron, resembling the prong of a hay-fork, with which he pierces the fish, and throws it with a jerk on deck, counting the number thus discharged, with a loud voice. Each cargo is thus safely deposited, and the boats instantly return to the fishing-ground, when, after anchoring, the men eat their dinner and begin anew. There, good reader, with your leave, I will let them pursue their avocations for awhile, as I am anxious that you should witness what is doing on board the vessel.

The captain, four men, and the cook, have, in the course of the morning, erected long tables fore and aft the main hatchway, they have taken to the shore most of the salt-barrels, and have placed in a row their large empty casks, to receive the livers. The hold of the vessel is quite clear, except a corner where is a large heap of salt. And now the men, having dined precisely at twelve, are ready with their large knives. One begins with breaking off the head of the fish, a slight pull of the hand and a gash with the knife effecting this in a moment. He

slits up its belly, with one hand pushes it aside to his neighbour, then throws overboard the head, and begins to prepare another. The next man tears out the entrails, separates the liver, which he throws into a cask, and casts the rest overboard. A third person dexterously passes his knife beneath the vertebræ of the fish, separates them from the flesh, heaves the latter through the hatchway, and the former into the water.

Now, if you will peep into the hold, you will see the last stage of the process, the salting and packing. Six experienced men generally manage to head, gut, bone, salt and pack, all the fish caught in the morning, by the return of the boats with fresh cargoes, when all hands set to work, and clear the deck of the fish. Thus their labours continue until twelve o'clock, when they wash their faces and hands, put on clean clothes, hang their fishing-apparel on the shrouds, and, betaking themselves to the forecastle, are soon in a sound sleep.

At three, next morning comes the captain from his birth, rubbing his eyes, and in a loud voice calling: "All hands, ahoy!" Stiffened in limb, and but half awake, the crew quickly appear on the deck. Their fingers and hands are so cramped and swollen by pulling the lines, that it is difficult for them to straighten even a thumb; but this matters little at present; for the cook, who had a good nap yesterday, has risen an hour before them, and prepared their coffee and eatables. Breakfast despatched, they exchange their clean clothes for the fishing-apparel, and leap into their boats, which had been washed the previous night, and again the *flotilla* bounds to the fishing-ground.

As there may be not less than a hundred schooners or pickaxes in the harbour, three hundred boats resort to the banks each day; and, as each boat may procure two thousand cods per diem, when Saturday night comes, about six hundred thousand fishes have been brought to the harbour. This having caused some scarcity on the fishing-grounds, and Sunday being somewhat of an idle day, the captain collects the salt ashore, and sets sail for some other convenient harbour, which he expects to reach long before sunset. If the weather be favourable, the men get a good deal of rest during the voyage, and on Monday things go on as before.

I must not omit to tell you, reader, that, while proceeding from one harbour to another, the vessel has passed near a rock, which is the breeding-place of myriads of puffins. She has laid to for an hour or so, while part of the crew have landed, and collected a store of eggs, excellent as a substitute for cream, and not less so when hard boiled as food for the fishing-grounds. I may as well inform you, also, how these adventurous fellows distinguish the fresh eggs from the others. They fill up some large tubs with water, throw in a quantity of eggs, and allow them to remain a minute or so, when those which come to the surface are tossed overboard, and even those that manifest any upward tendency, share the same treatment. All that remain at bottom, you may depend upon it, good reader, are perfectly sound, and not less palatable than any that you have ever eaten, or that your best guinea-fowl has just dropped in your barn-yard. But let us return to the cod-fish.

The fish already procured and salted, is taken ashore at the new harbour, by part of the crew, whom the captain has marked as the worst hands at fishing. There, on the bare rocks, or on elevated scaffolds of considerable extent, the salted cods are laid side by side to dry in the sun. They are turned several times a day, and in the intervals the men bear a hand on board at clearing and stowing away the daily produce of the fishing-banks. Toward evening, they return to the drying-grounds, and put up the fish in piles resembling so many haystacks, disposing those toward the top in such a manner that the rain cannot injure them, and placing a heavy stone on the summit to prevent their being thrown down should it blow hard during the night. You see, reader, that the life of a Labrador fisherman is not one of idleness.

The capelings have approached the shores, and in myriads enter every basin and stream, to deposite their spawn, for now July is arrived. The cods follow them, as the bloodhound follows his prey, and their compact masses literally line the shores. The fishermen now adopt another method: they have brought with them long and deep seines, one end of which is, by means of a line, fastened to the shore, while the other is, in the usual manner, drawn out in a broad sweep, to enclose as great a space as possible, and hauled on shore by means of a capstan. Some of the men in boats support the corked part of the net, and beat the water, to frighten the fishes within toward the land, while others, armed with poles, enter the water, hook the fishes, and fling them on the beach, the net being gradually drawn closer as the number of fishes diminishes. What do you think, reader, as to the number of cods secured in this manner at a single haul?—thirty, or thirty thousand? You may form some notion of the matter when I tell you that the young gentlemen of my party, while going along the shores, caught cod-fish alive, with their hands, and trouts, of many pounds weight, with a piece of twine and a mackerel-hook hung to their gun-rods; and that, if two of them walked knee-deep along the rocks, holding a handkerchief by the corners, they swept it full of capelings. Should you not trust me in this, I refer you to the fishermen themselves, or recommend you to go to Labrador, where you will give credit to the testimony of your eyes.

The "seining" of the cod-fish, I believe, is not *quite* lawful, for a great proportion of the codlings which are dragged ashore at last, are so small as to be considered useless; and, instead of being returned to the water, as they ought to be, are left on the shore, where they are ultimately eaten by bears, wolves, and ravens. The fishes taken along the coast, or on fishing-stations only a few miles off, are of small dimensions; and I believe I am correct in saying, that few of them weigh more than two pounds, when perfectly cured, or exceed six, when taken out of the water. The fish are liable to several diseases, and at times are annoyed by parasitick animals, which in a short time render them lean and unfit for use.

Some individuals, from laziness, or other causes, fish with naked hooks, and thus frequently wound the cod without securing them, in consequence of which, the shoals are driven away, to the detriment of the other fishers. Some carry their cargoes to other parts before drying them, while others dispose

of them to agents from distant shores. Some have only a pickaxe of fifty tuns, while others are owners of seven or eight vessels of equal or larger burden; but whatever be their means, should the season prove favourable, they are generally well repaid for their labour. I have known instances of men, who, on their first voyage, ranked as "boys," and in ten years after, were in independent circumstances, although they still continued to resort to the fishing; for, said they to me, "How could we be content to spend our time in idleness at home!" I know a person of this class, who has carried on the trade for many years, and who has quite a little fleet of schooners, one of which, the largest and most beautifully built, has a cabin as neat and comfortable as any that I have ever seen in a vessel of the same size. This vessel took fish on board only when perfectly cured, or acted as pilot to the rest, and now and then would return home with an ample supply of halibut, or a cargo of prime mackerel. On another occasion, I will offer some remarks on the improvements which I think might be made in the cod-fisheries of the coast of Labrador.

Audubon.

THE PRAIRIES.

The most remarkable feature of the Western world is the prairies. There are districts both in South America and in Asia, the pampas and the steppes, to which they have been compared, but perhaps without sufficient reason. In Europe I am not aware that any part of the surface assumes the form and exhibits the same phenomena.

Some hold, that the whole of the vast region over which they extend, was once submerged, and there is much to be said in support of this theory. They appear, however, under various forms, and from observation I should divide them into three great divisions: the "oak-openings," the rich level or rolling prairie interspersed with belts and points of timber, and the vast steril prairies of the Far West.

And first, the "oak-openings," so termed from their distinctive feature of the varieties of oak which are seen scattered over them, interspersed at times with pine, black-walnut, and other forest-trees, which spring from a rich vegetable soil, generally adapted to the purpose of agriculture. The surface is ordinarily dry and rolling. The trees are of medium growth, and rise from a grassy turf seldom encumbered with brushwood, but not unfrequently broken by jungles of rich and gaudy flowering plants and of dwarf sumach. Among the "oak-openings," you find some of the most lovely landscape of the West, and travel for miles and miles through varied park scenery of natural growth, with all the diversity of gently swelling hill and dale—here, trees grouped, or standing single—and there, arranged in long avenues, as though by human hands, with slips of open meadow between. Sometimes, the openings are interspersed with numerous clear lakes, and with this addition become enchantingly beautiful. But few of these reservoirs have any apparent inlet. They are fed by subterraneous springs or the rains, and lose their surplus waters by evaporation. Many lie in singularly-formed hollows, reflecting in their clear bosoms the varied scenery of the swelling banks, and the alternation of wood and meadow. Michigan and Illinois abound with these "oak-openings." Beyond the Mississippi they also occur; but there they hardly form a distinct feature, while on this side they would appear to form a transition from the dense American forest to the wider "rolling prairie," which further west ordinarily bounds the thick forest without any such character of country intervening.

The rich "rolling prairie," which would form the second division, presents other features, and in a great degree another vegetation. These prairies abound with the thickest and most luxuriant belts of forest, or as they are called "timbers;" appearing interspersed over the open face of the country in bands or patches of every possible form and size; sometimes checkering the landscape at short intervals, and at other times miles and miles apart. They present wide and slightly undulating tracts of the rankest herbage and flowers—many ridges and hollows filled with purple thistles—ponds covered with aquatick plants; and in Missouri, I always observed that these "rolling prairies," occupied the higher portions of the country, the descent to the forested bottoms, being invariably over steep and stony declivities. The depth and richness of the soil on these lands are almost incredible, and the edges of the bands of forest are consequently a favourite haunt of the emigrant settler and backwoodsman. The game is usually abundant. Over this class of prairie the fire commonly passes in the autumn, and to this cause alone the open state of the country is ascribed by many; as, whenever a few years elapse without the conflagration touching a district, the thick-sown seeds of the slumbering forest, with which the rich vegetable mould seems to be laden, spring up from the green sod of the country. The surface is first covered with brushwood composed of sumach, hazel, wild-cherry, and oak; and if the fire be still kept out, other forest-trees follow.

From those we pass to the vast boundless prairies of the far West—such as we skirted beyond Fort Gibson, unbroken, save by the forest rising on the alluvium of some river shore below their level, or by the skirts of knotted and harsh oak-wood of stunted growth—thick without luxuriance, such as the Cross Timbers of disagreeable memory. These prairies seem to occupy the highest parts of the table-land toward the courses of the great rivers and their tributaries. Here the soil is poor in the extreme, and charged with iron and salt; the water is scarce and bad, and the grass is luxuriant. They abound with abrupt and peculiarly-shaped flinty hills, swelling up from the general level—great salt plains—rock salt—and occasionally with isolated rocks rising from the surface, with steep perpendicular sides, as though cut by the hand of man, standing alone in the midst of the desert, a wonder to the Indian and the trapper.

The outline of these prairies is grand and majestick in the extreme. They are rarely perfectly level. As you advance, one immense sea of grass swells to the horizon after another, unbroked for leagues by rock or tree. They are the home of the bison, and the hunting-ground of the unfettered Indian of the North and West.

The good man is just in little things, the wicked man is little in great ones.

[Simon Bolivar.]

BIOGRAPHY.

SIMON BOLIVAR.—Born, 1783—Died, 1830.

THIS extraordinary military commander was the great parent of South American liberty, and he exhibited during the progress of the revolution, which he ultimately lived to see perfected, the most undeviating patriotism.

He was born in Caraccas, July twenty-fourth, 1783. After acquiring the first elements of a liberal education at home, Bolivar repaired to Europe; he completed his studies in Madrid, and then spent some time in travelling, chiefly in the south of Europe. On his return home, he passed through the United States of America; and the lesson of liberty was not without its fruits; for, on his arrival in Venezuela, he embarked in the plans of the patriots, and pledged himself to the cause of independence. Bolivar being one of the chief promoters of the movement in Caraccas of April nineteenth, 1810, which is considered as the beginning of the revolution, he received a colonel's commission from the supreme junta then established, and was associated with Don Luis Lopez Mendez, for the purpose of communicating intelligence of the change of government to Great Britain. He took part in the first military operations of the Venezuelan patriots after the declaration of independence, in 1811, serving under Miranda in an expedition against a body of persons in Valencia, who thus early took a stand opposed to the revolution. After the earthquake of March, 1812, the war was commenced in earnest by the advance of Monteverde with the Spanish troops; and the command of the important post of Puerto Cabello was intrusted to Bolivar. But the Spanish prisoners, in the castle of San Felipe, which commanded the town, corrupted one of the patriot officers, and obtained possession of the castle, so that he was compelled to evacuate the place.

Many of those persons who were deeply committed in the revolution, now sought to leave their country; and Bolivar succeeded in obtaining a passport, and escaping to Curacoa. Unable, however, to remain a cold spectator of the events occurring on the continent, he repaired to Carthagena, in September, 1812, and, with other emigrants from Caraccas, entered into the service of the patriots of New Grenada. He undertook an expedition against Teneriffe, a town higher up on the river Magdalena, occupied by the Spaniards, captured it, and, gathering forces on the way, he proceeded, on his own responsibility, to Mompox, driving the Spaniards before him from all their posts in Upper Magdalena, and finally entering the city of Ocaña in triumph, amid the acclamations of the inhabitants, whom he delivered. These happy and successful movements now turned the publick attention upon him; and he was invited to march upon Cucuta, and attempt to expel the Spanish division commanded by Correa. This operation, also, he achieved, without any loss, by the celerity and skill of his movements, and now conceived the great and bold project of invading Venezuela with his little army, and delivering it from the powerful forces under Monteverde. The congress of New Grenada gratified him in this respect, and gave him the commission of brigadier. Having overcome a number of difficulties which retarded his advance, and driven Correa from the valleys of Cucuta, he commenced his march for Vene-

zuela, with a small force of but little more than five hundred men, but accompanied by excellent officers, some of whom afterward acquired great celebrity, such as Rivas, Jirardot, Udaneta, and d'Eluyar.

Heedless of the accusations of rashness lavished on his enterprise, Bolivar plunged into the province of Merida. The inhabitants of the provincial capital rose upon the Spaniards, on learning the news of his approach. He hastily re-established the republican authorities there, while his vanguard was proceeding upon Trujillo, under Jirardot. A single engagement took place in Carache, where Jirardot defeated a strong corps of royalists under Canas, after which the provinces of Merida and Trujillo remained wholly free from the Spaniards. Bolivar had detached from his troops a small body under Colonel Briceno for the occupation of Varinas. Briceno was defeated; and, falling into the hands of the Spaniards, was shot in cold blood, with seventeen of his companions, and many of the patriots of Varinas, by the Spanish commandant Fiscar. Meanwhile, Bolivar obtained authentick intelligence of the horrid and shameless cruelties and oppressions every where perpetrated in Venezuela by Monteverde and his subordinate officers. Exasperated by the knowledge of these events, he issued the famous decree of *guerra á muerte*, condemning to death all the Spanish prisoners who might fall into his hands. But he was not of a cruel or sanguinary temper; and this decree seems to have been intended rather to intimidate the royalists, than literally to be put in execution. His army increasing daily, he separated it into two divisions, committing one of them to the charge of Rivas, and both rapidly advanced upon Caraccas through the provinces of Trujillo and Varinas. Several engagements ensued, in which the patriots were successful; and, at length, the decisive victory of Lastoguanes, in which the flower of Monteverde's troops were completely defeated, left open the road to Caraccas. Monteverde shut himself up in Puerto Cabello, and Bolivar lost no time in marching upon the capital, which was evacuated by the Spaniards without a struggle. Meantime, Marino had effected the liberation of the eastern provinces of Venezuela, of which the patriots had regained entire possession, excepting only the fortress of Puerto Cabello.

At this period, the whole authority in Venezuela centred in Bolivar, the successful general, as the commander of the liberating army, and the oppressions of some of his subordinate officers, excited loud complaints. Nevertheless, convinced of the necessity of having the resources of the country, at such an emergency, in the hands of a single individual, it was resolved, in a convention of the principal civil and military officers, assembled at Caraccas, in 1814, to confirm the dictatorial powers, which circumstances had already thrown upon the general. A desperate contest now ensued between the royalist and patriot forces; and to narrate the part which Bolivar took therein, would be to relate the whole history of the war. Suffice it to say, that, after various vicissitudes of fortune, he was beaten by Boves, in a battle fought in the plains of La Puerta, near Cura, and compelled to embark for Cumana, with the shattered remnant of his forces, so that Caraccas was retaken by the Spaniards, and the royalists were again undisputed masters of Venezuela. Once more, therefore, Bolivar appeared in Carthagena as a fugitive, and proceeded to Tunja, where the congress of New Grenada was sitting, to give an account of his brilliant, but, in the result, disastrous expedition. Notwithstanding his misfortunes, and the efforts of his personal enemies, he was treated with great consideration, and received the applause merited by one who had needed only resources proportionate to his talents, to have accomplished the permanent deliverance of his country.

When Bolivar arrived at Tunja, the congress was organizing an expedition against the city of Bogota, for the purpose of compelling the province of Cundinamarca to accede to the general union of the provinces of New Grenada, and thus put an end to the collision which divided the means, and crippled the exertions of the republicans. Every conciliatory measure having failed to effect a union of the provinces, the government had recourse to arms. Bolivar was intrusted with the delicate task of commanding the forces of the union upon this occasion, and marched against Santa Fé early in December, 1814, at the head of nearly two thousand troops. He invested the city, drove in the outposts, obtained possession of the suburbs by storm, and was preparing to assault the great square, where the dictator Alvarez, and the troops of Cundinamarca were posted, when the latter capitulated, and became subject thenceforth, to the general government of New Grenada, which was peaceably transferred to Bogota. The congress passed a vote of thanks to Bolivar, for the wisdom and courage with which he had directed the campaign, and brought it so speedily to a happy termination; and the inhabitants of the city themselves, expressed their approbation of his personal conduct.

Bolivar remained in Kingston, whilst Morillo was reducing Carthagena, and overrunning New Grenada. During his residence there, a hireling Spaniard, made an attempt upon his life, and would have assassinated him, if it had not happened that another person occupied Bolivar's bed at the time, who was stabbed to the heart.

From Kingston, Bolivar repaired to Aux Cayes, in the island of Hayti, and assisted by private individuals, and with a small force furnished by Petion, formed an expedition, in conjunction with Commodore Brion, to join Arismendi, who had raised the standard of independence anew in the isle of Margarita. He arrived in safety at Margarita in May, 1816, and, sailing thence, landed on the main land near Cumana, but in a few months was encountered by the Spaniards under Morales at Ocumare, and compelled to re-embark. Nothing disheartened by this failure, he obtained reinforcements at Aux Cayes, and in December, 1816, landed once more in Margarita. There he issued a proclamation convoking the representatives of Venezuela in a general congress; and from thence passed over to Barcelona, where he organized a provincial government, and gathered forces to resist Morillo, who was approaching with a powerful division. They encountered each other in a desperate conflict, which ended in Bolivar's obtaining the victory. Morillo retreated in disorder, and was met and defeated anew by General Paez, with his irresistible *Llaneroi*. Bolivar, being now recognised as supreme chief, proceeded

in his career of victory, and, before the close of the year 1817, had fixed his headquarters at Angostura. He found time, however, to preside at the opening of the congress of Angostura, in February, 1819, and to submit a long and elaborate exposition of his views of government. He also surrendered his authority into the hands of the congress, which required him to resume it, and to retain it until the independence of his country should be fully achieved. Bolivar soon reorganized his forces, and set out from Angostura with the purpose of crossing the Cordilleras, and affecting a junction with General Santander, who commanded the republican forces in New Grenada, so that the united arms of the two republicks might act with the greater efficiency. He succeeded in reaching Tunja, which city he entered after a battle on the neighbouring heights, and, on the seventh of August, gained the great and splendid victory of Bojaca, which gave him immediate possession of Santa Fé and all New Grenada. The viceroy Semano fled precipitately before him; and he was enthusiastically welcomed in Santa Fé as a deliverer, appointed president and captain-general of the republick, and enabled by the new resources of men, money, and munitions of war which he found there, to prepare for returning into Venezuela with an army sufficient to ensure the complete expulsion of the Spaniards.

Bolivar's entry into Angostura after his glorious campaign in New Grenada, was a peculiarly gratifying and affecting spectacle. Its whole population hailed him as the liberator and father of his country. He embraced the favourable moment to obtain the great fundamental law by which the republicks of Venezuela and New Grenada were to be henceforth united in a single state, by the title of the *republick of Colombia*. Meanwhile, the seat of government was transferred provisionally to Rosario de Cucuta; and Bolivar again took the field at the head of the most formidable army that had been assembled by the independents. After a series of memorable advantages over the Spaniards, an armistice of six months was negociated at Trujillo, between Bolivar and Morillo; the latter soon afterward returned to Spain, leaving La Torre in command. At the termination of the armistice, Bolivar made a great effort to finish the war by a decisive blow, and attained his object, by vanquishing La Torre in the famous battle of Carabobo, leaving to the Spaniards only the broken fragments of an army which took refuge in Puerto Cabello, and there, after a protracted and obstinate struggle of more than two years, surrendered to General Paez.

The battle of Carabobo may be regarded as having put an end to the war in Venezuela, as Bolivar again entered Caraccas, having for the third time rescued his native city from its oppressors, and was received with transports of joy. By the close of the year, the Spaniards were driven from every part of the country, except Puerto Cabello, and Quito; and the time was deemed auspicious for establishing permanent political institutions in Colombia. A permanent constitution was completed, and Bolivar was elected the first constitutional president, with General Santander for vice-president. Having thus achieved the independence of his own country, he placed himself at the head of the liberating army, destined to expel the Spaniards from Quito and Peru. The fate of Quito was decided by the battle of Pichincha, fought in 1822, and gained by the talents and prowess of Sucre. Aware that the southern provinces of Colombia could never be secure while Peru remained subject to Spain, and anxious to extend the blessings of independence to all America, Bolivar resolved to march upon Lima, and assist the Peruvians. The royalists, not being prepared to meet him, evacuated Lima at his approach; and Bolivar, entering the capital amid the acclamations of the people, was invested with supreme power as dictator, and authorized to call into action all the resources of the country for its liberation. But, opposed and denounced by some of the factions which distracted Peru, he found himself under the necessity of returning to Trujillo in Northern Peru, leaving Lima to be retaken by the Spaniards under Canterac.

In June, 1825, Bolivar visited Upper Peru, which detached itself from the government of Buenos Ayres, and was formed into a new republick, named *Bolivia*, in honour of the liberator. The members of the congress of the new republick, assembled in August, 1825, seemed to vie with one another in extravagant resolutions, testifying their gratitude to Bolivar and Sucre. The former was declared perpetual protector of the republick, and requested to prepare for it a constitution and government. Returning to Lima, he occupied himself in performing this task.

We have now arrived at a period when Bolivar appears in a new aspect. Hitherto we have traced his military career, at first uncertain, and abounding in great reverses, but at length splendidly successful. His remarkable fertility in resources, his courage, conduct, and pre-eminent genius for the art of war, are all undeniable, and are proved not less by his brilliant success, than by the testimony of all the most competent judges. But he now comes before us in the capacity of a lawgiver; and imputations on the purity of his political views arise contemporaneously with his assuming the delicate task of consolidating the governments which his military prowess had created. In December, 1824, Bolivar issued a decree convoking a constituent congress to assemble in Lima the ensuing February. This body assembled accordingly; but in consideration of the unsettled state of the country, resolved to continue the dictatorial powers of Bolivar another year, without attempting to settle the government permanently. They also urged on the dictator a grant of a million of dollars, which he, with a liberality of feeling and contempt of mercenary motives which invariably distinguished him, rejected. Congress soon adjourned, and Bolivar remained sole and absolute governour of Peru. Residing partly at Lima and partly at Magdalena, he directed the acts of the government, and, at this period, proposed the celebrated congress of Panama, for the purpose of establishing a stable alliance between all the independent states of America. Having completed his project of a constitution for Bolivia, he presented it to the congress of that state, with an address dated May 25th, 1826, wherein he solemnly recorded his opinions of the form of government required by the new republicks of the south. With reference to this extraordinary code, it is enough to state that, among other features which alarmed the friends of liberty, the most exceptionable was a

provision for lodging the executive authority in the hands of a president for life, without responsibility, and with power to nominate his successor. When the nature of this constitution became generally known in South America, it excited the liveliest apprehensions, especially among the republicans of Buenos Ayres and Chili, who feared or pretended to fear an invasion from Bolivar; and not less in Peru, where he began to be accused of a design to unite permanently Colombia, Peru, and Bolivia, and to make himself perpetual dictator of the same. These imputations received countenance, at least, from the proceedings of Bolivar himself. The surrender of Callao, by completely freeing Peru from the Spaniards, finished the business for which Bolivar and the Colombian troops had been called into the country. But he manifested no intention of departing, or of resigning his authority. On the contrary, when the deputies for the constituent congress of 1826, assembled, they saw fit, or were induced, for alleged irregularities in their appointment, and for other causes, to decline acting in their legislative capacity. A majority of the deputies published an address, in which they urged Bolivar, to continue at the helm another year, and, meantime, to consult the provinces individually, as to the form of government which they might desire, and the person who should be placed at its head. Accordingly, circular-letters, written in the name of Bolivar, and his council of government, and issued from the bureau of his minister Pando, were addressed to the several prefects of departments, commanding them to assemble the electoral colleges, and submit for their sanction, a form of constitution, precisely the same with the Bolivian code, only adapted to Peru. This constitution was adopted by the colleges, who also nominated the dictator president for life under it, with a unanimity too extraordinary not to have been the result either of intimidation or of management. Before this time, however, events had transpired in Colombia, which demanded the presence of Bolivar in his own country. During his absence, the vice-president, Santandar, had administered the government with ability and uprightness. Colombia had been recognised by other countries, as an independent state; its territory was divided into departments, and its government regularly organized. But, in April, 1826, General Paez, who commanded in Venezuela, being accused before the Colombian senate, of arbitrary conduct in the enrolment of the citizens of Caraccas in the militia, refused obedience to the summons of the senate, and placed himself in open rebellion to the national government and constitution. Taking advantage of this unhappy incident, the disaffected party in the ancient Venezuela, and all those opposed to the existing administrators of the government, united with Paez; and thus, the northern departments became virtually separated, for the time being, from the rest of the republick. But all professed a readiness to submit their grievances to the decision of Bolivar, and anxiously required his return to Colombia. While these movements were taking place in Venezuela, professedly with a view to obtain a federal, instead of a central form of government, various municipalities in the southern departments, formed from what had been the presidency of Quito, held publick meetings, in which they voted to adopt the Bolivian code, and lodged the authority of dictator in the hands of Bolivar. Evidence has been adduced, showing that the latter proceedings were in accordance with the wishes of Bolivar, and that the meetings were actually summoned by the personal intervention of Leocadio Guzman, an emissary of his, who suggested the resolutions they should pass; and suspicions have not been wanting, that Paez was either incited or sustained, by intimations received from the same quarter. These circumstances most imperiously demanded the presence of Bolivar, whether as the cause or object of the publick distraction, or as the means of composing them. Accordingly, he set out for Lima, committing the government to a council of his own appointment, and responsible to him alone, with General Santa Cruz at its head, and leaving the whole of the Colombian auxiliary army in Peru and Bolivia. The dictator made all haste to reach Bogata, which he entered November fourteenth, 1826, and assuming the extraordinary powers which, by the constitution, the president is authorized to exercise in case of rebellion, he remained only a few days in the capital, and pressed on to stop the effusion of blood in Venezuela. He went, accompanied by merely a small escort, although forces were in readiness to sustain him, if requisite, and all the demonstrations of insurrection vanished at his approach. He reached Puerto Cabello, December thirty-first, and immediately issued a decree, giving assurance of a general amnesty to the insurgents, on their peaceably submitting to his authority, and engaging to call a convention for the reform of the constitution. He had a friendly meeting with Paez, and soon afterward entered Caraccas, where he fixed his headquarters, having the northern departments under his immediate personal authority, and separated from the body of the republick, which proceeded in its ordinary routine.

Bolivar and Santander had respectively been reelected to the offices of president and vice-president, and should have been qualified anew, as such, in January, 1827. But, in February, Bolivar addressed a letter from Caraccas to the president of the senate, renouncing the presidency of the republick, and expressing a determination to repel the imputations of ambition cast upon him, by retiring to seclusion upon his patrimonial estate. Santander, in reply, urged him to resume his station as constitutional president, convinced that the troubles and agitations of the country, if they were not occasioned by the intrigues of Bolivar himself, might at any moment be quieted, by his lending the authority of his name, and his personal influence, to the cause of the constitution. But distrust, suspicion, and jealousy of the conduct and intentions of Bolivar, now filled all the friends of republican institutions. He had recorded his confession of political faith, to use his own expression, in the anti-republican Bolivian code, and he was believed to be anxious for its introduction into Colombia. When his renunciation of the presidency was submitted to the consideration of the congress, a portion of the members urged that body to accept the renunciation. They publickly accused him of being in concert with Paez, of having designedly thrown the whole nation into discord and confusion, in order to create a false impression of the necessity of bestowing upon himself the dictatorship. But a

majority of the members insisted upon his retaining the presidency, and required his presence at Bogota, to take the constitutional oaths. Before he came, however, they had passed a decree of general amnesty, a decree for assembling a national convention at Ocana, and a decree for re-establishing constitutional order throughout Colombia. His arrival was hastened by unexpected events, touching him personally, which had occurred in Peru and the southern departments. Not long after his departure from Lima, the returns of the electoral colleges were received by the council of government, by which the Bolivian code was pronounced to be the constitution of Peru, and Bolivar the president for life. The constitution was accordingly promulgated officially, and was sworn to by the publick functionaries in Lima, December ninth, 1826, the anniversary of the victory of Ayacucho. At this time the Colombian auxiliary army in Peru, was cantoned in three divisions, one stationed in Upper Peru, and two in Lower Peru, one of these at Arequipa and one at Lima. This third division consisted of veteran companions of Bolivar's triumphs, and was commanded by his personal friends, General Lara and Sands. Notwithstanding the attachment of these troops to Bolivar, they had lately been growing distrustful of his designs; and although they did not feel disposed it would seem, to thwart his views upon Peru, they took alarm immediately, when they saw cause to believe that he had similar views upon their own native Colombia. The consequence was that, in the short space of six weeks after the new constitution was solemnly adopted, they came forward, and revolutionized the government of Peru. So well were their measures taken, that, January twenty-sixth, 1827, they arrested their general officers without any conflict or opposition, placed themselves under the command of Bustamante, one of their colonels, and announced to the inhabitants of Lima, that their sole object was to relieve the Peruvians from oppression, and to return home to protect their own country against the alleged ambitious schemes of the dictator. The Peruvians immediately adjourned the Bolivian code, deposed Bolivar's council of ministers, and proceeded, in perfect freedom, to organize a provisional government for themselves.

Arrangements were speedily made, after this bloodless revolution was effected, to transport the third division to Guyaquil, according to their own desire. They embarked at Callao, and landed in the southern department of Colombia, part of them proceeding for Guyaquil, and part for Cuenca and Quito, uniformly declaring their object to be the restoration of constitutional order, in opposition to any designs upon the publick, entertained by the dictator. Intelligence of these events reached Bolivar, while he was still in the north of Colombia. Rousing himself instantly from his long-continued inactivity, he made preparations for marching to the other extremity of the republick and reducing the third division. But these troops, finding the government was in the hands of the regular national executive, had peaceably submitted to General Ovando, who was sent, by the constitutional authorities, for the purpose of taking the command. Bolivar meanwhile signified his consent to be qualified as president, and proceeded, with this intention, to Bogota, where he took the oaths prescribed by the constitution, and resumed the functions belonging to his official station. To external appearance, therefore, Colombia was restored to tranquillity, under the rule of her constitutional magistrates. But the nation was divided between two great parties, and agitated to its centre by their opposite views of the political condition of the country. Bolivar had regained the personal confidence of the soldiers and officers of the third division, who expressed the deepest repentance for their distrust of his character, and their entire devotion to his interests. But the republican party, and the friends of the constitution, with Santander at their head, continued to regard his ascendancy over the army, and his political movements, with undisguised and not unfounded apprehension, universally accusing or suspecting him of a desire to emulate the career of Napoleon. They looked to the convention of Ocana, which was to assemble in 1828, for a decided expression of the will of the nation in favour of the existing republican forms. The military, on the other hand, did not conceal their conviction that a stronger or more permanent form of government was necessary for the publick welfare, that the people were unprepared for purely republican institutions, and that the dictator ought to be intrusted with discretionary power to administer the affairs of Colombia.

In 1828, Bolivar assumed the supreme power in Colombia, by a decree, dated Bogota, August 27th, which gave him authority to maintain peace at home, and to defend the country against foreign invasions, to have the command of the land and sea forces, to negociate with foreign powers, to make peace and declare war, to make treaties, to appoint the civil and military officers, and to pass decrees and ordinances of every description. The decree provided, however, that he should be assisted in the exercise of executive power by the council of ministers.

We have thus traced somewhat in detail the progress of this extraordinary individual, and it may be enough to add that after his countrymen had again risen in arms against him, and again acknowledged their ingratitude to their liberator, he died at San Pedro, December 17, 1830. His political consistency, in times of the severest trial, and his undeviating patriotism, are the best eulogium to his memory: and South America will in future ages look to him as the regenerator of a land which only requires equal laws to render it the envy of most European states.

Nutritious matter in food.—From analyses by experienced chymists, it is found that the proportion of nutritions matter in some of the more common human aliments, is as follows:—

100 lbs.	Wheat contain	85 lbs. nutritious matter.
	Rice	80
	Barley,	83
	Beans,	89 to 92
	Peas,	93
	Lentils,	94
	Meat, (average)	35
	Potatoes,	25
	Beets,	14
	Carrots,	10
	Cabbage,	7
	Greens,	6
	Turnips,	4

POPULAR MEDICAL OBSERVATIONS.

If we consult the various works on diet, we meet with very different opinions as to the advantages and the disadvantages of eating fruit. This diversity of opinion has arisen chiefly from taking a narrow view of the question; from not sufficiently limiting the conditions under which the fruit should be eaten, and from not paying enough attention to the kind of fruit that should be allowed.

Fruits, and indeed acids of all kinds, are least likely to produce inconvenience, either directly on the stomach or bowels, or indirectly on the system, in hot weather and hot climates, than in cold weather and colder regions.

Fruits not having much acidity, nor much luscious sweetness, nor an undue proportion of watery juice, are decidedly the least likely to disagree with the stomach and bowels. Hence fruit should be perfectly, but not, as it is called, *dead* ripe. Hence also melons are by no means easy of digestion.

No dietetick rule is more important than this—that the fewer articles the stomach has to act upon at a time, the more likely it is to be able to digest them. Hence all articles that are to be looked upon as being at all suspicious, as being in any degree likely to disagree, should be eaten alone, and not be mixed with other food. Now, most invalids, nearly all sufferers from indigestion, and many of the comparatively healthy, find that fruit does not always agree with them; that its digestion, either in the stomach or the bowels, sometimes occasions inconvenience, or uneasiness, or even pain. Let it, then, never be eaten after a meal, nor along with other heavy or strong food; but let it rather be eaten when the stomach is empty, when it has no other matters to require and distract its attention.

The more the stomach has had to do in a given time, the less will it be fitted for further work; and if to a certain point, and for a moderate time, it has been allowed to repose from its labours, it will be in a much fitter condition for the exercise of its powers. Hence many articles of diet are digested without inconvenience, when eaten in the morning, or in the earlier part of the day, that would by no means agree with the stomach if taken in the afterpart of the day, or in the evening. The best time for eating fruit is, therefore, for more reasons than one, in the morning or the forenoon—at breakfast, or between that meal and dinner.

During sleep, the earlier stages of digestion are much hurried, and the latter stages coming on prematurely, are performed imperfectly, and often with much inconvenience, and at times with no small disturbance to the system. Hence it is at no time more imprudent to eat fruit than at supper, or, worse still, just before going to bed.

The greater the amount of actual vigour that the system possesses, the more easy and quick will be the digestion of food; the more exhausted the bodily powers, the more likely an article of food will be to disagree. Hence the very worst time at which fruit can be eaten, is when the individual is fatigued—when the powers are exhausted—no matter how, whether by mental labour, or bodily exercise, or excessive heat.

By attending to these points, it will be found that many can eat fruit with impunity, and indeed without risk, who could not otherwise have done so.

But there is an essential thing still to be mentioned; one that can hardly be too much urged on the reader's attention. It is that the quantity eaten be moderate; be rather less than the stomach could take without inconvenience, than more than it could comfortably digest.

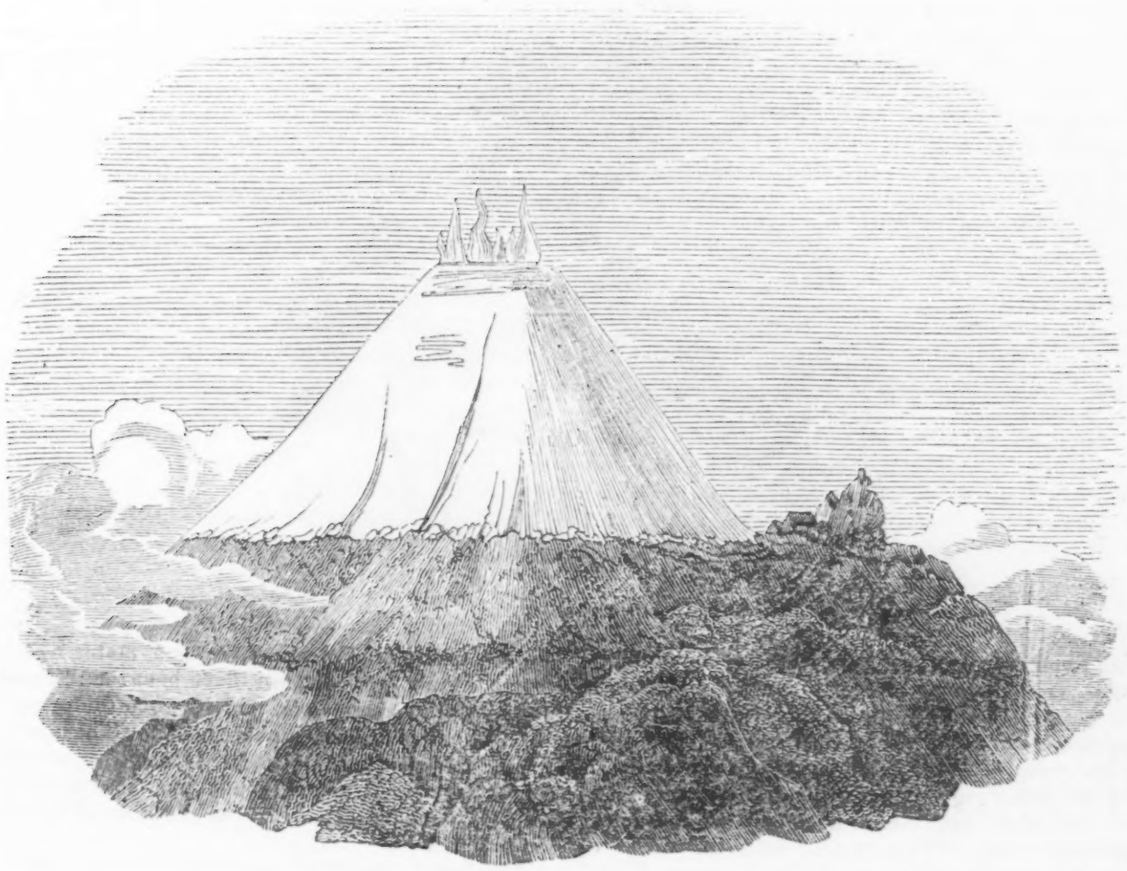
If these rules are strictly attended to, the others that have still to be mentioned, may be less heeded than would, *a priori*, be believed. Yet there are one or two other matters which are not without their value.

The skins and seeds are, for the most part, utterly indigestible; they undergo no alteration in their passage through the stomach and bowels, and, therefore, are often mechanical sources of irritation, and should never, or in very few instances, be eaten.

Those fruits the fibres of which are tender and soft, which contain an average, but not an excessive quantity of juice—which are neither very acid nor very sweet, but contain a due balancing of these two qualities, are the most likely to suit the stomach, and to be digested without inconvenience. Such a fruit is the strawberry, and the raspberry, and the orange, and the grape. An approach to such a fruit is the currant, and the gooseberry. Next to these, we should class the apricot, and the peach, and the nectarine; in these latter the fibres are tougher. As we descend in the scale of comparative digestibility to the apple and the pear, this increases. Descending thence we come to the plum tribe; as plums, cherries, &c. In these the luscious, highly saccharine principle is objectionable; and, to increase the bad effects of this, the skin or rind is much more apt to be eaten than in any of the above-mentioned fruits. The whole nut tribe, possessing, as prominent features, hard fibres, and an oily matter with which all nuts abound, are most unwholesome, and can seldom be indulged in with absolute impunity; they should be strictly shunned by the invalid, or the man whose digestive powers are weak or disturbed. Nuts are rendered much more wholesome if eaten with salt: it stimulates the stomach into an effort sufficient to digest them.

Most fruits are rendered much more digestible by being cooked, whether stewed, or boiled, or baked. Many invalids cannot eat a raw apple without paying a penalty for the indulgence; yet they can eat, and are even benefited by a stewed or roasted apple. Fruit is, we think, most easily digested, if baked or roasted. Stewed fruits rank perhaps next in point of digestibility; and then boiled fruits. The drier the cooked fruit is eaten, the more likely will it be to agree with the stomach; it is therefore impolitick to *make sirup* to eat with the fruit, as is too often done. What are called *teas*, made from the acid or sub-acid fruits, as lemonade, orangeade, black currant tea, or apple tea, are, therefore, much more likely to disagree, than are the fruits themselves. This is a practical remark, and it may be well for the reader to remember the fact.

It is, in general, as well to avoid as unwholesome, those fruits which require the addition of sugar to render them palatable; but, nevertheless, such fruits are much more digestible with a moderate quantity of sugar, than they would be without it. The watery fruits, if eaten at all, should always be taken with the addition of wine, in order to secure their digestion, or rather to render this more probable.



[Cotopaxi.]

A CHAPTER ON VOLCANOES.

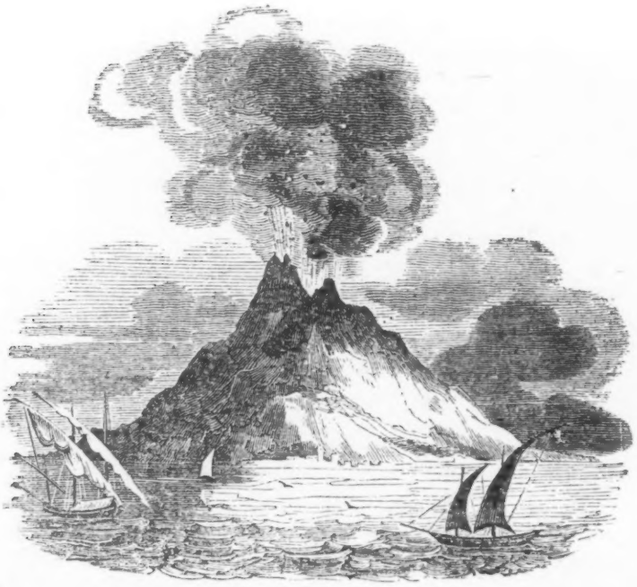
The above cut represents Cotopaxi, the most remarkable volcanick mountain of the Andes, in Quito. It is the most beautiful of the colossal summits of the Andes. It is a perfect cone, which, being covered with an enormous layer of snow, shines with dazzling splendour at the setting of the sun, and stands forth in bold relief from the azure heavens. This covering of snow conceals from the eye of the observer even the smallest inequalities of the ground. No point or mass of rock penetrates the coating of snow and ice, or breaks the exact regularity of the conical figure. The crater is surrounded by a small circular wall, which, when viewed through a telescope, appears like a parapet. Its height above the sea, is 18,891 feet. It is the most tremendous volcano in Quito, and its explosions have been most disastrous, spreading destruction over the surrounding plains. Remarkable eruptions took place in 1698, 1738, 1742, 1744, 1766, and 1768; and one in 1803. In 1698, the eruption destroyed the city of Tacunga, with three fourths of its inhabitants, and other settlements. In 1738, the flames rose nearly 3000 feet above the brink of the crater; and in 1744, its roarings were heard as far as Honda, on the Magdalena. With respect to the explosion of 1803, Humboldt observes: "At the port of Guayaquil, fifty-two leagues distant, in a straight line, from the crater, we heard, day and night, the noise of this volcano, like continued discharges of a battery; and we distinguished these tremendous sounds even on the Pacifick ocean." In viewing this volcano, every thing contributes to give it a most awful character. The pyramidal summits of Illinissa; the snowy ridges of the other mountains; the singular regularity of the inferiour line of snow, and the luxuriance of the great plains, offer an unparalleled assemblage of the grand and picturesque features of nature. Humboldt found it difficult to ascend the mountain, in 1802, as far as to the limit of perpetual snow, and he pronounces it impossible, by any human art, to reach the summit. It is thirty miles S. S. E. of Quito, and is situated to the N. N. E. of Chimborazo.

In that extremely valuable and interesting number of the Harpers' Family Library, entitled, The Earth, by W. M. Higgins, we find the following remarks on volcanoes:—

It is said that there are not more than three volcanoes which are in a state of permanent activity: that of Stromboli, one of the Lipari isles; the Devil's Mouth, in the Lake of Nicaragua; and that in the isle of Bourbon.

Stromboli has been in a state of constant activity for more than two thousand years, and is a good type of this class. Lava seldom overflows its crater, but large masses of burning rocks and scoria are incessantly ejected in a perpendicular direction. This phenomenon, accompanied by a loud explosion, occurs every seven or eight minutes, of which fact we are informed by Pliny, as well as by modern travellers.

Dolomieu examined this interesting mountain, and has given the following description of its eruptions:—"The inflamed crater is on the northwestern part of the isle, on the side of the mountain. I saw it dart



[Stromboli.]

during the night, at regular intervals of seven or eight minutes, ignited stones, which rose to the height of more than a hundred feet, forming rays a little divergent, but of which the greater quantity fell back into the crater, while others rolled even to the sea."

On the following day he ascended an eminence above the crater, from which he obtained a still more interesting view. "The crater," he says, "is very small; I do not think it exceeds fifty paces in diameter, having the form of a funnel terminating in a point. During all the time I observed it, the eruptions succeeded with the same regularity as during the preceding night. The approach of the eruption is not announced by any noise or dull murmur in the interiour of the mountain, and it is always with surprise that one sees the stones darted into the air. There are times when the eruption is more precipitate and violent, and stones describing more divergent rays are thrown into the sea at a considerable distance."

It has been stated by Dolomieu, Hamilton, and Scrope, on the authority of the islanders, that during the winter season, the eruptions are far more violent than in summer, and that atmospherick changes may be generally predicted from the appearance of the crater. Sometimes during the storms of winter the cone is split, and large currents of lava are discharged.

[Island of Volcano.]

In the island of Volcano there is a crater which at some former period must have been active, and still emits gaseous vapours, which prove the continued existence of the volcanick cause. "The operations of this volcano," says Dr. Daubeny, "exhibit perhaps the nearest approximation to a state of activity during which descent into the crater would have been practicable.

"Nor can I imagine a spectacle of more solemn grandeur than that presented in its interiour, or conceive a spot better calculated to excite, in a superstitious age, that religious awe which caused the island to be considered sacred to Vulcan, and the various caverns below as the peculiar residence of the gods."

THE PHASE OF PAROXYSMAL VIOLENCE.

The phase of paroxysmal violence, or, as it is usually called, long intermittences, is characterized by lengthened periods of repose, followed by violent, though transient eruptions. Baron Humboldt has stated that lofty volcanoes are always in this state. The volcanick mountains of the Andes have not, generally speaking, an eruption more than once in a century: and the peak of Teneriffe, which was active in 1798, had not at that time been disturbed for ninety-two years. It must not, however, be supposed, that this volcanick condition is confined to elevated craters, for the histories of other mountains give abundant instances to the contrary.

The phenomena which accompany eruption are nearly the same in all cases; varying in intensity, and consequently in the violence of their effects. In some cases the phenomena and the effects are confined to the immediate neighbourhood of the excited mountain; while in other instances, and it is generally the case when the mountain is in the phase of paroxysmal intensity, the effects are felt for many miles round the active cone. The explosions of Cotopaxi have been heard at a distance of six hundred miles.

The activity of a volcano generally commences with a loud detonation, which is succeeded by others

less loud, and the escape of aeriform fluids. Large fragments of rock and masses of lava are usually projected by these discharges, some of which fall back into the crater and are redischarged, until they are reduced to powder, and mingle with the surrounding atmosphere of heated vapour. The accumulation of these particles produces the appearance of dense clouds of smoke, which are almost invariably seen to surround the summit of the crater.

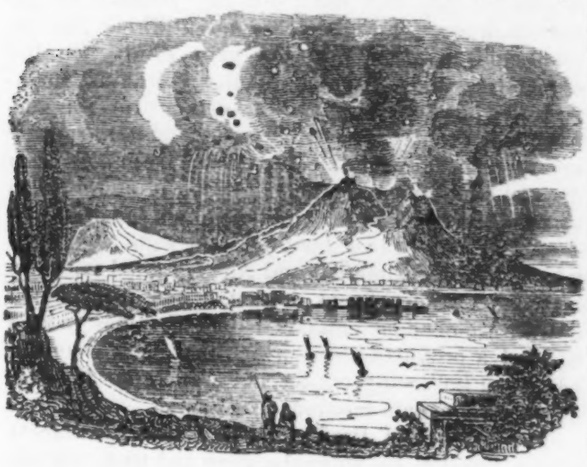
The lava then rises to the vent of the mountain, and finds an egress from the crater, or from some lateral opening. In some cases, however, scoria alone are projected. During the day, the lava is generally hidden by the aqueous vapours which arise from it, but at night it appears of a glowing heat. While the lava continues to flow, the detonations are frequently less violent: but there is no proof of the diminution of the paroxysm until the mountain ceases to eject; and even then peace is not immediately restored, for scoria and masses of rock are often thrown out for some time after the dreadful crisis is past.

When the detonations become less frequent, rumbling sounds are heard, as the retreat of mighty waters; and the mountain seems gradually to yield to exhaustion, or sinks into a state of partial rest, occasionally disturbed by explosions, and the ejection of scoria. Towards the conclusion of an eruption, that is, after the lava has ceased to flow, the surrounding country is frequently enveloped in dark clouds of black-coloured sand, or a white comminuted pumice.

The lofty mountains seldom eject lava from their summits, but from lateral openings; for it requires far less power to open a passage in the side of the mountain, than to elevate the intumescent mass to the summit. In the last eruption of Teneriffe, a lateral opening was formed; and, according to a calculation by M. Daubuisson, it would have required a force equivalent to a thousand atmospheres, to raise a mass of lava to the elevated crater of the mountain.

We may now adduce a few examples of activity in the phase of paroxysmal violence; and the difficulty is not to find a characteristick type, but to choose from the many authenticated and interesting details, that are to be found in the page of philosophical records.

Vesuvius was in this phase in the year 1794. The first proof of the approach of the dreadful eruption which happened at this time, was during the night of the twelfth of June, when a severe shock of earthquake was felt at Naples, and over the surrounding country. Nothing more occurred to rouse the fears of the inhabitants till the evening of the fifteenth, when the earth was again violently agitated. Shortly after this, an opening was formed on the western base of the mountain-cone, which, on after examination, was found to be two thousand, three hundred and seventy-five feet in length, and two hundred and thirty-seven feet in breadth, and a stream of lava was ejected. Not long after the volcanick action had commenced, four distinct hills were formed, composed of lava, from each of which, stones and other ignited substances were thrown in such quick succession, that it appeared as if they were each ejecting a vast flame of fire. At this time, the lava flowed in great abundance, taking its course towards Portici and Resina. The inhabitants of Torre del Greco, rejoiced to see a prospect of their escape from the destroying fluid, were assembled together to return thanks for their deliverance, and to supplicate for their unfortunate neighbours, when they received the melancholy tidings, that the lava had changed its direction, and was approaching their town. In flowing down a declivity, it had divided itself into three streams; one directing its course towards St. Maria del Pagliano, another towards Resina, and a third toward La Torre.



[Vesuvius.]

During the whole of this time, the mountain was greatly convulsed, and deep hollow sounds were heard, which, together with the impetuous ejection of the lava, shook the mountain itself to the very base. When the oscillatory motion of the mountain ceased, the sounds became less frequent but more distinct; the lava flowed more abundantly, and the action seemed as though it were suffering under the last paroxysm of its dying energies. This was about four o'clock in the morning of the sixteenth, and at that time the intumescent mass had spread itself through all the streets of Torre del Greco, and from thence had flowed into the sea, covering its bed three hundred and sixty-two feet beyond the margin of the water, the current having a breadth of eleven hundred and twenty-seven feet. The distance from the point of ejection to the place where its progress was arrested, was twelve thousand, nine hundred and sixty-one feet.

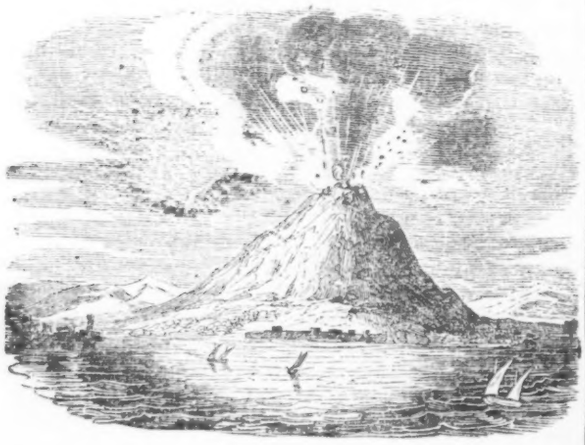
During the progress of the eruption, the summit of Vesuvius was perfectly quiescent, and no remarkable phenomenon was observed round the crater. But towards the dawn of day, the heights of the mountain were hidden by a dense cloud of comminuted sand, which, spreading itself, in a short time covered the whole country, and the sun was darkened by an impenetrable mantle of clouds.

It is impossible to describe the horrours of that night, in which Vesuvius poured out its terrible fury on the beautiful valley beneath it. The fiery ejections and the inexpressible groans of the mountain, the deathlike stillness of the atmosphere, and the cries of the thousands who had been driven from their homes and all the pleasures of life, must together have presented a combination of terrours which no imagination can realize.

But, it was not on the western side only that lava was ejected; there was an active crater on the eastern; and the stream which flowed from it filled the

valley of Torienta, which was sixty-five feet wide one hundred and twenty feet deep, and one thousand, six hundred and twenty-seven feet long. From this valley it took its way into the plain of Forte, where, like the western stream, it divided into three branches, which severally took their course towards Bosco, Mauro, and the plains of Mulara. This current was not above half so large as that which flowed from the western side.

When the lava ceased to flow, the crater was covered by a dense cloud of comminuted pumice, which enveloped it the four following days, during which time, the summit of the mountain fell into the internal cavity. The surrounding country, to the distance of ten or twelve miles, was wrapped in a midnight darkness, and thunder-storms were awfully frequent. The average depth of the sand which fell during this period, for a distance of three miles round Vesuvius, is said to have been fourteen and a half inches.



[Etna.]

We may take Etna as another example of volcanick activity in the phase of paroxysmal violence. This mountain is entirely composed of volcanick rocks, and rises in imposing grandeur to the height of ten thousand feet above the level of the sea. It is about one hundred and eighty miles in circumference, and is surrounded on every side by apparently small volcanick cones, though of no inconsiderable size. The earliest historical notice of this mountain, is by Thucydides, who states that there were three eruptions previous to the Peloponnesian war, to one of which Pindar alludes, in his first Pythian Ode. In the year 396 B. C., the volcano was again active; and, according to Diodorus Siculus, the Carthaginian army was stopped by the flowing lava when marching against Syracuse.

One of the most remarkable eruptions suffered by this mountain, was that which occurred in the year 1669, which was so violent that fifteen towns and villages were destroyed, and the stream was so deep that the lava flowed over the walls of Catania, sixty feet in height, and destroyed a part of the city. But the most singular circumstance connected with this eruption was the formation of a number of extensive fissures, which appeared as though filled with intumescent rock. At the very commencement of the eruption, one was formed in the plain of St. Lio, twelve miles in length, and six feet broad, ejecting a vivid flame, and shortly after five others were opened. The town of Nicolosi, situated twenty miles from the summit of Etna, was destroyed by earthquake, and near the place where it stood two gulfs were formed, from which so large a quantity of sand and scoria was thrown, that a cone called mount Rossi, four hundred and fifty feet high, was produced in about three months.

We may, perhaps, introduce one other example of the effects produced by volcanoes in the condition of paroxysmal violence. Hecla has been long celebrated for the intensity and continuance of its eruptions. The island in which it is situated is not unfrequently shaken from its centre to its shores with violent earthquakes, and new islands are often formed upon its coasts, some of them sinking beneath the level of the water as quickly as they were formed, and others continuing for so many years as to give expectation of their permanence. Hecla has been more than twenty times in a state of eruption during the last eight hundred years, and, when excited, its devastating fury is not easily appeased. But Iceland is, as it were, the covering of one of the principal Plutonian workshops, and its mountains are the chimneys of ever-active forges.

[Hecla.]

If we could mention one year as being more distinguished than any other for the violence of the volcanick force in Iceland, we might direct the attention of the reader to the year 1783. On the eleventh of June, Skaptár Jokul, a volcanick mountain that has often spread desolation over the surrounding country, ejected a considerable torrent of lava, which, flowing into the river Skapta, dried it up, and overflowed the fields beyond it, although in some places the bed was more than six hundred feet deep and nearly two hundred feet wide. A deep lake between Skaptardal and Aa was filled with the lava, and a subsequent current "was precipitated down a tremendous cataract called Stapafos, where it filled a profound abyss which that great waterfall had been hollowing out for ages, and after this the fiery current again continued its course."

The remarks of Professor Lyell upon the effects of this eruption are so explanatory and true, that we

may be permitted to quote them. "These Icelandick lavas, like the ancient streams which are met with in Auvergne and other provinces of Central France, are stated by Stephenson to have accumulated to a prodigious depth in narrow rocky gorges, but when they came to wide alluvial plains they spread themselves out into broad burning lakes, sometimes from twelve to fifteen miles wide and one hundred feet deep. When the 'fiery lake,' which filled up the lower portion of the valley of the Skaptâ had been augmented by new supplies, the lava flowed up the course of the river to the foot of the hills, whence the Skaptâ takes its rise. This affords a parallel case to one which can be shown to have happened at a remote era in the volcanick region of the Vivarais, in France, where lava issued from the cone of Thueyts, and while one branch ran down, another more powerful stream flowed up the channel of the river Ardechê.

"The sides of the valley of the Skaptâ present superb ranges of basaltick columns of older lavas, resembling those which are laid open in the valleys descending from Mont d'Or, in Auvergne, where more modern lava-currents, on a scale very inferiour in magnitude to those of Iceland, have also usurped the beds of the existing rivers. The eruption of Skaptár Jokul did not entirely cease till the end of two years; and when Mr. Paulson visited the tract eleven years afterward, in 1794, he found columns of smoke still rising from parts of the lava, and several rents filled with hot water."

REVOLUTIONARY REMINISCENCES.

An old gentleman, one of the few survivors of Lee's celebrated partisan legion, gave me the following account of a charge made by a detachment of that gallant corps, which he pronounced the most effective it ever made:—

We were lying near Fort Granby, (said he,) watching the movements of the British army, and seeking daily for opportunities to cut off its supplies, or any detached parties that might be pushed out. Early one morning, Captain Armstrong, the most dashing, headlong and gallant fellow of our corps, was detached with twelve men, on a reconnoitring expedition, and during the afternoon of the same day, Captain Eggleston was sent out with a party of eighteen on the like errand in a different direction. Towards evening, the parties met, and having formed a junction, retired into a piece of woods which skirted the road, and which, though prostrated, apparently by a tornado, yet afforded sufficient cover to hide us from casual observation, when dismounted: while at the same time, it enabled us to see every thing passing on the road. We threw ourselves on the ground, under the broad canopy of heaven, as was our usual custom, not being possessed of tents, and slept soundly, having at first fastened the bridles of our horses to our hands. At break of day, having roused ourselves from sleep, while some were idly lounging about, and others standing chatting, in groups, a woman wrapped in a red cloak, and mounted on horseback, passed by. Some of the men, for want of better employment, kept following her with their eyes as she rode along. Presently, she turned into a path which led to the British camp. It was skirted by high fences on either side, terminating at the wood in which we were. As they continued watching her progress, their eyes fell snddenly upon a party of sixty British dragoons, who were approaching her from their camp, on a foraging expedition. They rode up to her, and during their conversation, her pointing frequently towards the spot where we were stationed, soon convinced us that she had discovered our position, and was imparting her knowledge to them. Well aware of what was likely to ensue, we all, without waiting for orders, mounted our horses, in silent expectation. "What shall we do?" said Eggleston, turning to Armstrong. "Charge them, boldly," replied the latter, and at the same time mounting his horse, called out, "twelve men follow me," and dashed down the road towards them at full speed, without stopping a moment to weigh the chances or hazard of an encounter, with a force so vastly superiour. The enemy, seeing two bodies of cavalry issue from the road, drew up his line facing us, and sat firmly, pistol in hand, waiting our approach. As Armstrong rode up, they fired at his party, but so hurriedly that not a shot took effect, and before they had time to draw their sabres, he burst in upon them, "like a thunderclap," overturning whole ranks, and cutting them down in every direction.

Eggleston now joined, and the slaughter became terrible; for they thinking, in the first instance, that the fire of their pistols would either check or repulse us, had made no attempt to draw their swords, until we were hand to hand with them. Such attempts, when made, were in most cases rendered of no avail, by the ardour and gallantry of our men, who unhorsed them before the sabre had left its sheath, or dealt a blow in defence of its wearer. Resistance was soon changed to flight, and while pressing their flying ranks, in the chase, we were forced to cut down many who had ceased to resist, as a regard to our own safety, and their numerical strength, forbade their being left unharmed and capable of doing us injury, in the rear. Hemmed in on both sides by fences, and mounted on sorry horses, this last resource availed them so little tha but one of the whole party escaped capture or death, and so hotly did we pursue him, that the outer line of sentinels was passed, and one of them captured, before we reined in. The detachment captured, formed a part of the army under the command of Lord Rawdon.

Gen. Lee has mentioned the circumstance in his Memoirs, but is incorrect in the minor details. He says Eggleston was detached with thirty dragoons, to join Armstrong, who had been previously sent out with a party, and that forty-five only of the enemy's dragoons were taken. The fact is, we numbered in all but thirty men, and captured or killed sixty of the enemy, including the sentinel. Capt. Eggleston was thanked in general orders; but the glory of the achievement belongs manifestly to Armstrong. The former was of a cautious disposition, and probably never would have hazarded his command in such an attack, unless compelled, as in the present instance, by the necessity of supporting his more daring companion.

Thus terminated one of the bravest actions which the history of the Revolution can present, and one which reflects credit on those honoured patriots who established the independence of the country.

MANAGEMENT OF PLANTS IN ROOMS.

To treat on the proper management of plants in houses, is a subject attended with considerable difficulty: every genus requiring some variation, both in soil, water, and general treatment. If the room, where the plants are intended to be placed, is dark and close, but few will ever thrive in it;—if, on the contrary, it is light and airy, with the windows in a suitable aspect to receive the sun, plants will do nearly as well as in a green-house. But if they are observed to suffer, the effects may generally be traced to one of the four following causes:—Want of proper light and air—injudicious watering—filthiness collected on the leaves—or, being potted in unsuitable soil.

1st. Want of proper light and air—is perhaps the most essential point to be considered; for, however well all other requisites are attended to, a deficiency in either of these will cause the plants to grow weak and sickly. Let them always be placed as near the light as they can conveniently stand, and receive as much air as can be admitted, when the weather will allow. Indeed those persons who have no other place than the house to keep them in, will find that they derive immense advantage from being, during fine weather, in spring and autumn, turned out of doors in the evening, and taken in again in the morning; the night dews contributing greatly to their health and vigour.

2d. Injurious watering—does more injury to plants in rooms than many persons imagine. To prevent the soil ever having a dry appearance, is an object of importance in the estimation of very many; they therefore water to such an excess that the mould becomes sodden, and the roots consequently perish. Others, to avoid this evil, run exactly into the opposite extreme, and scarcely give sufficient to sustain life. This however, is by no means so common a practice as that of giving too much; for in general, if any thing appears to be the matter with the plants, large doses of water are immediately resorted to; and if recovery is not speedy, this nostrum is again administered, with but little doubt of its infallible restorative powers:—but such persons, like an unskilful physician who gluts the weakly stomach of his patient, only hasten on what they are trying to prevent. This overplus of water will show its bad effects by the very dark colour and flabby disposition of the leaves; and if the plant receives too little, the leaves will turn yellow, and eventually die.

The best plan is, to always allow the soil in the pot to have the appearance of dryness, (but never sufficient to make the plant flag,) before a supply of water is given, which should then be very copious; but always empty it out of the pan or feeder in which the pot stands, as soon as the soil is properly drained. The water used for the purpose, ought always to be made about the same temperature as the room in which the plants grow—never use it fresh from the pump—either let it stand in a warm room all night, or take off the chill by adding a little warm water to it, or the growth of the plants will be much checked.

3d. Filthiness collected on the leaves—may either arise from insects, or dust; the former may be speedily remedied, by placing the plants under a hand glass, or any thing that is convenient, and burning some tobacco until they become well enveloped in the smoke; and the latter may be removed by occasionally washing them on the head with pure water, either by means of a syringe, the rose of a watering-pan, or with a sponge, when the filth still adheres.

4th. Being potted in unsuitable soil—is by far the most difficult part of the business to rectify, for no certain line can be drawn, unless each genus were treated on separately; however, as this cannot be done in a paper like the present, a few general remarks, which perhaps, with some little exceptions, may be found to be pretty correct, must suffice.

All plants whose branches are fragile or slender, and roots of a fine thready fibrous texture, with general habits like the Ericeæ, will require the same soil, (peat earth,) and very similar treatment to Cape Heaths. Those whose wood and general habits partially differ, and whose roots are of a stronger texture, as Acacia, Ardisia, Stenocarpus, Tetratheca, Tristanea, &c., will require a portion of sandy loam—in many cases about equal parts; and where the habits, &c., differ materially from the heath, only a small portion of peat earth will be required, and a compost may be made a little rich, by the addition of well rotted manure.

Almost all Cape and other bulbs, as Sparaxis, Ixia, Gladiolus, Tritonia, &c., thrive best in a mixture of rich sandy loam, leaf mould, and a little peat. Shrubby and herbaceous plants, with luxuriant roots and branches, as several species of Myrtus, Jasminum, Hibiscus, Hermannia, Heliotropium, &c. require rich loam, lightened with leaf soil, without any portion of peat. Plants with powerful roots, but slender heads, as Veronica, Senacia, Scutellaria, Ruellia, Maurandia, &c., require a light sandy soil, mixed with a small portion of leaf mould and very rotten manure. At the time of potting, always lay a plenty of broken potsherds at the bottom of each pot, to give good drainage.

It will be seen that these directions do not allude to either orchideous, succulent, or aquatick plants. Many of the orchideæ require a portion of decayed wood mixed with the soil: others grow in damp moss; but these being chiefly stove plants, will not flourish in a room; there are several species, however, that thrive very well both in the green-house and in rooms, as, Arethusa, Calopogon, Dendrobrium Ophrys, &c.; the soil suitable for these is a mixture of about equal parts of light sandy loam and peat; very little or no water must be given when they are not in a growing state.

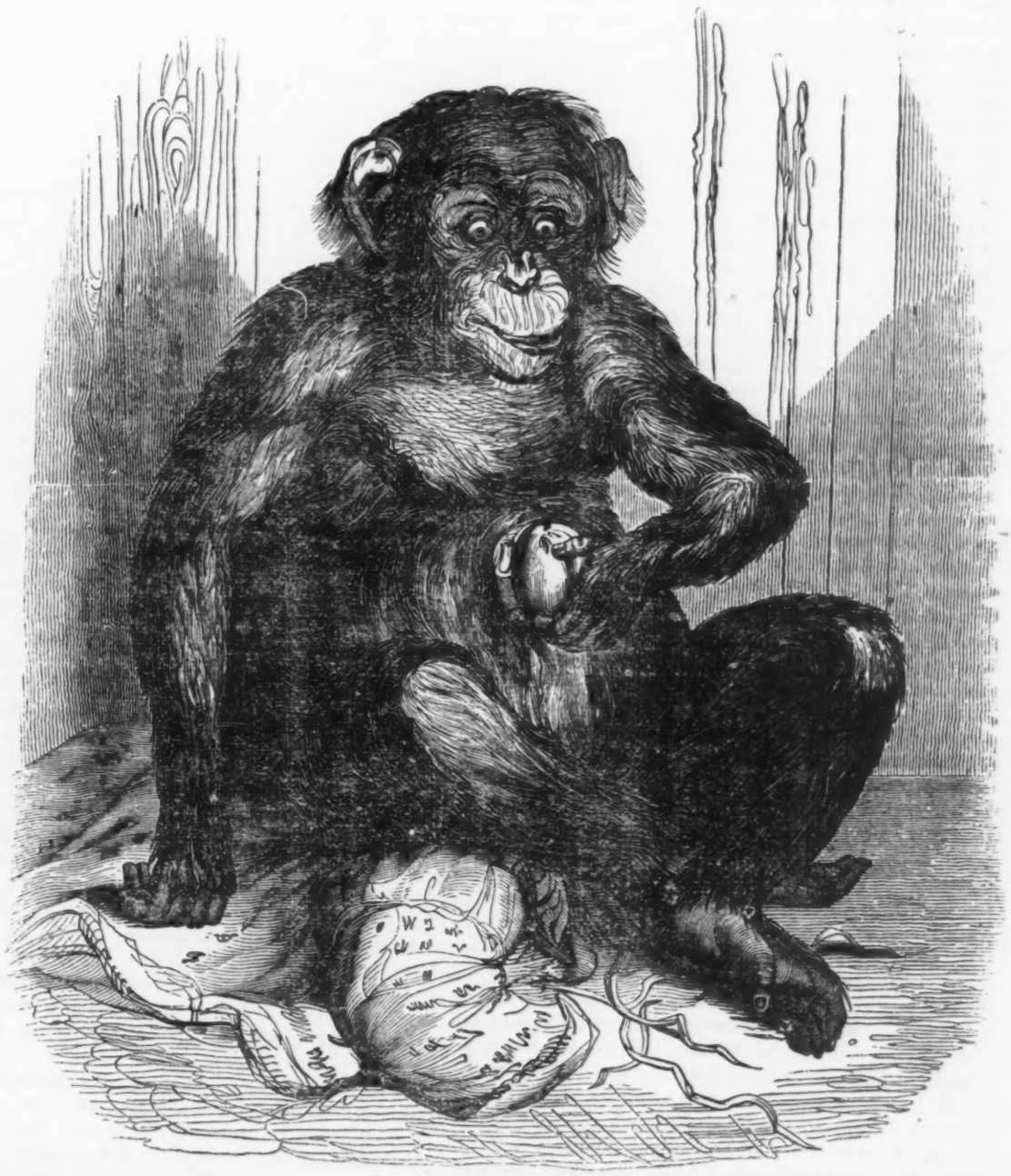
Succulent plants of all descriptions require very little water, and in general are very easily managed in rooms; many of them thrive in a mixture of sandy soil and lime rubbish, as Aloe, Cacalia, Cactus, &c., others grow well in a mixture of equal parts of light sandy loam and peat, as Coris, Cotyledon, Mesembryanthemum, &c. The proper soil for the Geranium, is half rich rotted manure, a fourth fresh yellow loam, and a fourth of equal parts of good garden mould and leaf soil.

Aquatick plants, Villarsia, Actinocarpus, &c., generally do well in a mixture of peat and loam, and require to be constantly kept in a wet state; indeed the best way is to place the pot in a deep pan or feeder, which should always be kept filled with water.

Bulbs of most sorts flourish in rooms with less care than most other kinds of plants. Hyacinths should be planted in autumn. In preparing pots for them, select such as are about four inches deep, and three inches wide, put a little rotten manure in each pot, fill it up with light rich soil, and plant the bulbs so shallow that nearly half the bulb stands above the soil; plunge the pots in the open air, and cover them six or eight inches deep with rotten bark. During spring, take them out as they are wanted to bring into flower, and set them in the window of a warm room, where they will be fully exposed to the sun. Those who do not possess a garden, may set the pots in the cellar or outhouse, or in the corner of a yard, and cover them with light soil or sand until they are wanted to bring into the room to flower. When the leaves begin to decay after they have done flowering, give them no water; when the leaves are dead, take them out of the soil and remove the offsets, and lay them in an airy situation until the time of planting.

If grown in water glasses, they require to be placed in a light airy situation, and the water will require to be changed once in three or four days. If drawn up weekly, it will be necessary to support the stems with sticks, split at the bottom so as to fit on the edge of the glasses at the top. This, however, will not be necessary if they be kept in a light and airy situation. When out of flower, plant them in pots of soil to perfect their leaves, and treat them as above: they will then flower again the succeeding year.

NATURAL HISTORY



[The Chimpansee.]

THE CHIMPANSEE.

The chimpansee is, as has been said, found both in the Asiatick isles and in Africa; and it is said to be of larger size and more handsome form in the latter country than in the former—that it has the arms shorter, walks more erect, and has the neck longer. These differences tend to show that the trees which have apes' food, are of smaller growth and further apart from each other than in Asia; and that, also, in part explains why none of the long-armed climbing apes are found in Africa, but have their place supplied by the baboons, which run well upon all-fours, and are more ferocious in their dispositions. The very few specimens of the chimpansee which have been seen in this country have been all of small stature; but they have been young, and we neither know the period which these animals require to attain their full stature, nor the circumstances by which their growth may be retarded or stopped. Travellers say that they attain the height of an ordinary man; but there is reason to suspect that in that, as well as in some other points, their history has been confounded with that of the larger baboons. It is said that they live in small bands, and construct a series of huts for their common residence. The former is likely, as all apes are, to a certain degree, social; but the construction of the huts is doubtful, as it has not been borne out by what has been observed of other apes, or even of the same species in the East. The fact is, that the comparisons which have constantly been made between these animals and man, render it no easy matter to determine what portion of the reports which are given of them should be received and what rejected: and the chimpansee is not so very like man after all. The flat top of the head, the great round ears, and the short and scanty hair on the head, have nothing very human in their aspect. There is a ridge over the eyes, but it is not like an eyebrow; and the eyes have nothing human in their enforcement or their expression. The nose is merely a ridge on the muzzle; and the mouth, from the manner of its opening, as well as the extent to which it opens, is evidently intended for no purpose save that of biting. The lower jaw is not a chin either, in its anterior part, but merely a deep jaw, to afford insertion to the large teeth and the powerful muscle.

It does not appear that the differences which have been mentioned as existing between the chimpansees of Africa and of the Oriental isles, are sufficient to constitute a difference or even a variety; the more so that we are but little acquainted with the appearance and habits of the adult animals in either region All that can be inferred is, that they have to climb more and walk less, and their arms are lengthened and their legs shortened and weakened in proportion. Even those chimpansees which are the best walkers, do not walk as man does, by advancing the leg, while the body remains square to the front; they roll the pelvis, and the feet, instead of moving over straight lines, move over arches of circles, of each of which the opposite hip joint is the centre; and even in them the feet are far more efficient in climbing and grasping than in walking, which shows that climbing is the grand motion for which they are organized; and that just as much of the power of walking is added, as enables them to be the passing feeders upon fruits in those parts of the forests where the fruit-bearing trees are too small and far asunder for suiting the organization of the long-armed ape.

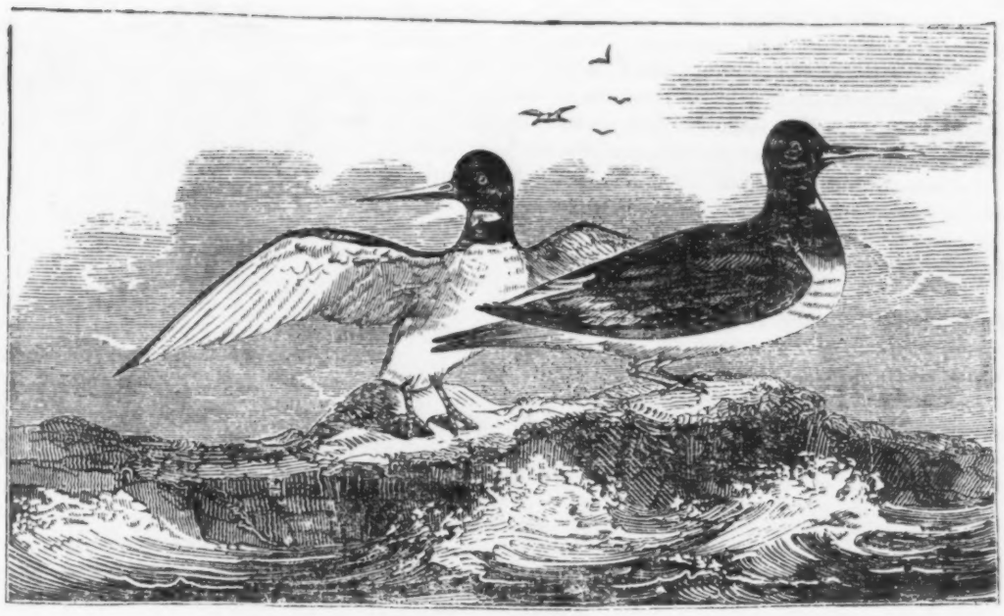
The face and ears of the chimpansee are of a brown colour, and naked; but the skin of the face, especially, is withered and leather-like, and has no resemblance to the human skin in texture and gloss; it more resembles the naked parts of some reptiles, or those of the bats. The head, back of the neck, shoulders, and back, are covered with coarse black hair, rather long, and forming a sort of whiskers or tufts on the cheeks, but otherwise longest on the upper parts of the back. The arms have the hair inclining downward from the shoulder to the elbow, and upward from the wrist to the same, and these form a sort of ruff at the point of meeting. This position of the hair enables the forearm to be more readily thrust among the leaves, to pull the fruit. When there are hairs on the human forearm, they are not turned toward the elbow, but outward, and inclining to the wrist. So that, down to the very minutest particular, we find in the ape adaptations to peculiar localities and habits, not one of which can be traced in man.

Even the trivial name of this species (*troglodytes*) is in some sort connected with gratuitous analogies, and as such calculated to mislead. In ancient times there was a race of people known by the name of *troglodytes*, or "dwellers in caves," said to inhabit somewhere in the vicinity of the Red sea, and to be of small stature and deformed outline; and so strong was the prejudice, arising probably from this similarity of name, that Linnæus himself made man one species of the genus *homo*, and the chimpansee, which of course, was not so well known to Europeans in his time as it is now, another, under the name of *homo troglodytes*. Now it does not appear that the chimpansee is troglodytes at all, inasmuch as it does not dwell in caves. It does not inhabit those regions in which the troglodytes of the ancients are said to have resided, and it is rather improbable that the ancients had any accurate knowledge of the places in which it is now found.

THE OYSTER-CATCHER.

The oyster-catcher lives by the seaside, feeding on marine insects, for which it may be seen actively searching at low water. Their name of oyster-catcher is also derived from their expertness in extracting the oyster, which however can be done only when the shell is open, and not even then without great caution; for instances have been known of the unfortunate bird being made prisoner by the oyster closing upon its beak.

Its eggs are laid on the bare ground, for the nest, if it deserves to be so called, consists only of small shingle and shells thrown up by the sea, so little above highwater-mark, that in high spring tides they are frequently swept away. When taken young, they may be easily tamed, and they are in England frequently introduced into pleasure-grounds. We remember seeing very considerable numbers of them, some years ago, on the lawn of the pavilion at Brighton, collected by order of his late majesty George IV., where they were running about with



[Oyster-Catchers.]

the tameness and familiarity of poultry. Nothing could be more ornamental than their smart pieballed glossy coats, in contrast with their long, bright, orange beaks and legs, and crimson irides.

THE WHALE.

THE whale is one of the most interesting of nature's productions. The regions in which it is usually found; its vast size; its singular form; its curious habits; its combining at once the maximum of physical strength and gentleness of disposition; and a variety of other circumstances, all conspire to render the whale the wonder of the deep.

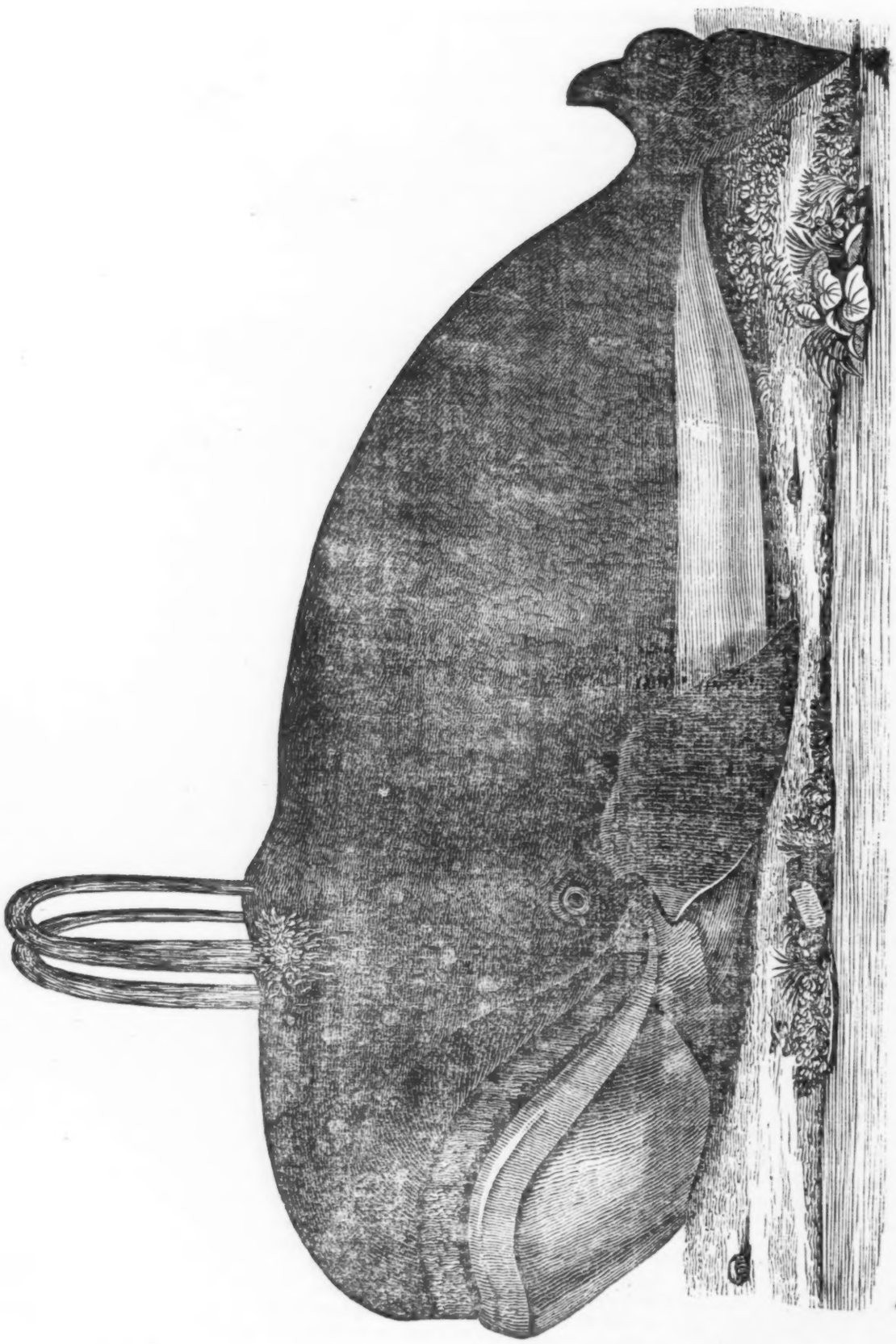
The common whale may be said to inhabit the whole ocean, and its size and power render it worthy of that ample field. It is not quite so discursive over the ocean, or so frequently seen in the middle latitudes, or indeed in any places where the temperature is warm, as the more voracious whales which feed upon large fishes. Those, like the predatory land animals, are furnished with powerful weapons of prehension, so that wherever the sea is inhabited they can find food, and the shark himself cannot escape their all-powerful jaws. The common whale, on the other hand, more resembles some peaceful animal which grazes the savannah, or browses the leaves of the evergreen forests; and therefore it can remain and feed for a season in peculiar localities only.

These localities may be said to be in an eminent degree the margins of the polar ice, the very extremes and confines, as it were, of the ocean. Little is known with certainty of the times or the extent of its migrations, because its march along the mighty waters is too fleet for our observations to follow. It is said that they can move as fast as a mail-coach and feed while they are moving; and as, when wounded by a harpoon, they can "take out" the line so fast that, if not watered, it would speedily take fire by the friction of the roller, it is probable that they can make equal despatch on their journeys; that is, they can move twenty-five or thirty miles miles in the hour, the least of which would send them six hundred miles a day, or from sixty degrees north latitude, to sixty degrees south, in the short period of fourteen days.

The velocity with which they move, and the periods at which it is probable their migration takes place, may both tend to make them in a great measure unobserved. It is probable that they pass the middle latitudes in the stormy weather about the equinoxes; and thus thousands may pass without one of them being observed from a single ship. They may make their whole course too, without feeding, because of the vast accumulation of fat or blubber under the skin, which analogy leads us to conclude, can, like the accumulated fat of land-animals, be in part at least, absorbed as nourishment when food is scarce, or the habit of the animal prevents it from feeding. At those periods too, the young of many fishes are discursive near the surface, and these may serve for food on the passage.

These whales catch their food with the plates and fringes of the *baleen*, as with a net, and the only sense that can guide them in the selection is taste, residing in the tongue; and the current of water passing over that, when the motion is rapid, must be like the stream of a rivulet. It is thus probable that they have little more selection of food than what the throat can swallow. In the balæna that is very limited, the greatest extent of the gullet not being more than would admit a hen's egg. In some of the balænoptera it is considerably wider—as much as between three and four inches in diameter; and thus, though these are much smaller, they can swallow food in larger morsels. The common large whale certainly could not swallow any fish larger than the herring; and from its summer-feeding in the arctick seas, the times and places where we are best acquainted with its economy, it probably feeds very little upon fish of any description.

Whales are found near the ice, or in the bays or openings among the different ice-fields, and generally



[The Whale.]

in what is termed the *green water*. This green water derives its colour from the immense multitude of small animals which are dispersed through it; and these animals, many of which are almost, or altogether microscopick, appear to be the ordinary and proper food of the common whales. The creatures which colour this water, may appear to be but slender cheer for the largest of all animals; but their numbers are such, as to make up for their small size; and the prehensile apparatus which the whale displays, is sufficient to filter a mile of the sea, in a comparatively short time.

The size of the mouth of course varies with that of the body; but a gap of more than twenty feet in length, and fifteen in breadth, is not extravagant. The opening of the jaws may be estimated at eight or perhaps ten feet, which is about the length of the longest plates of baleen, which are situated near the middle of the length. The section of the mouth is therefore about three hundred and seventy-five feet, and the solid contents three thousand. So that making every allowance, the whale, as it feeds along the deep, commands more water than the North river discharges; and this immense volume of water passing regularly through the mouth of one animal, at the rate of say only five or six miles an hour, enables it to collect an incredible quantity of the small matters upon which it feeds.

The form of the mouth, the way in which the plates of baleen are arranged, and the fringes with which they are furnished, both on their edges, and at their extremities, enable the animal to detain every small substance which the water may contain, while the whole arrangement is such, that these substances are, as they accumulate, carried towards the opening of the gullet.

It may here be mentioned, that the lips of the whale have a peculiar double curvature in their lateral outline. The lower one is also larger than the upper, and has a double margin, forming a groove into which the edge of the upper lip fits when the mouth is shut, and the ends of the baleen when the mouth is open. The internal palate is formed of two curved inclined planes, one on each side, and to these the thick ends of the plates of baleen are attached by a ligamentous substance. These plates are parallel to each other, and placed across the mouth. There are sometimes several hundreds of them on each side. They are thinned off toward their inner sides, and it is to these that the fringes are attached. The plates appear to have no proper motion or muscular apparatus for effecting it. When the mouth is opened, they fall pendent by their own weight, so that the fringes on their lips touch the tongue, and those on their sides, reach from the one plate to the other. When the animal moves forward, the plates are bent back a little at their points, by the resistance of the water, and the fringes are also turned to the direction of the throat. At the anterior part they are shorter in proportion to the middle of the gap, so that they give way and admit the water more freely; but become stiffer and offer more resistance as the throat is approached. From the great length of the gap, the water escapes easily in the lateral interstices between the plates, while the eatable substances which it contains, are kept back by the fringes. The bending backward at the points, sends all the food downward in the direction of the ample and fleshy tongue, which lies like a great cushion, filling the under part of the mouth. It does not appear, however, that the tongue acts in directing the food to the gullet, in any other way than by influencing the *set* of the current of water that way. From the smallness of the gullet, the quantity of water which reaches it must be small, and as a return by the same way that it arrives, would be inconvenient, it is received into cavities in the head; and, from time to time, discharged by the operation of blowing.

The feeding-apparatus, and the whole operation of feeding are thus, in the baleen, or whalebone whales, very peculiar, and quite different from those of any other species of animal. Feeding, in them, can be attended with no more fatigue than what results from their progressive motion through the water, and the occasional blowing of the water from the cavities in the head. There is no motion of the jaws, or of the baleen, and it does not appear that there is much of the tongue. The food receives no kind of preparation in the mouth, but goes to the gullet in precisely the same state in which it is separated from the water by the filtering action of the baleen. Though interrupted in all parts of its progress by the plates, the current of water toward the gullet may be compared to a wedge, which gets smaller as it proceeds, in consequence of the quantity which escapes laterally. Toward the top of this wedge, the food is collected, and by that it is carried onward to its destination, the small quantity of water which carries it there, being disposed of in the manner above stated. If the productiveness of the water be considered as uniform, the rate at which the whale feeds will thus be proportionate to that at which it moves through the water; and rapid motion along a bare pasture, will have the same effect as slow motion over a rich one. The only efficient organ of motion in whales is the tail; and therefore, strange as it sounds in words, the tail of the whale is the active instrument in the procuring of its food. Its usual mode of feeding is near the surface, so that a considerable portion of the body is above water. That portion is wholly black in colour, and not very handsome in shape; and as there is no fin on the back, and the eyes, though well-formed, and even expressive, are very small for the size of the animal, (about equal to those of an ox,) there is nothing animated in the appearance of the floating whale, when seen from a distance. It looks like a floating log, or the top of a small dark islet; and when the jets of water and steam are thrown up in the operation of blowing, it does not require much stretch of imagination, to consider the islet an infant volcano.

HOUSEHOLD DUTIES.

Towards the end of the month preparations should be made for a general house-cleaning; and it is as well to anticipate bugs, by having the bedsteads taken down and well washed with solution of corrosive sublimate, named in a former number: if this business is delayed later, it will be more troublesome, as the weather is often warm and calls insects into activity. Where paint and repairs are needed, they should of course be completed before cleaning, precedence being, however, always given to the chim-

ney-sweeper. Brushes, flannels, soap, scouring-paper, &c., in short, all articles used in house-cleaning, should be amply provided before operations actually commence. Before cleaning the walls of a room, pictures, mirrors, &c., should be removed and cleaned. When cobwebs collect, a cloth should be fastened over the bristles of the broom to remove them; and, indeed, walls should frequently be swept in this manner, to clear them from the dust which inevitably settles upon them, more especially in rooms with fires; and in bedrooms with fires, the housemaid should make frequent use of the whisk brush, to clear the bed and curtain hangings from dust.

Rooms should be furnished with two sets of window-blinds, that they may be occasionally changed and washed; few things give a more disreputable appearance to a house than dirty window-blinds.

Stair-carpets should always have a slip of paper put under them, at and over the edge of every stair, which is the part they first wear out, in order to lessen the friction of the carpets against the boards beneath. The strips should be within an inch or two as long as the carpet is wide, and about four or five inches in breadth, so as to lie a little distance upon each stair. This simple plan, so easy of execution, will, we know, preserve a stair-carpet half as long again, as it would last without the strips of paper.

Pillow-covers will be found of service in all families. They may be of the cheapest calico, made like a pillow-case, and tacked or run on to the pillows, occasionally removing them, that they may be washed; once in a twelvemonth will be often enough. The advantages resulting from the use of pillow-covers, are, that the ticking is thus preserved always fresh and clean; that a fine Holland pillow-case looks white and even, instead of the stripes of the ticking appearing through it; and that, in the event of a pillow-case being on the decline, the flaws and thin places are not so apparent as they would be without the intervention of a calico-cover.

A good housekeeper always examines every thing she has ordered when it is delivered, to see that it agrees with her check-book. An inventory of plate should be kept with memorandums of marks, letters, &c., on the various articles; and the servant who has the charge of all that is in constant use, should likewise be furnished with a list, and at stated times be called upon to verify it to her mistress.

It is very important that servants should carefully sift their cinders, for which purpose they should be supplied with a proper cinder-sifter to save them from unnecessary dirt. New-made candles should never be burned, and servants should be required to produce and burn up candle-ends, to enable them to do which, save-alls should be at hand. It is but too true, that in coals and candles, servants are inclined to waste and extravagance.

A cook should save all the boilings from chickens, calf's head, and veal for her stock-pot, and the bones of fresh meat and poultry. Soups and gravies are not so clear when made of meat which has been cooked, but where families are not very fastidious, soup may always be had at a very trifling expense as above. Where economy is essential, very excellent gelly may be made from a knuckle of veal, *well* stewed, to supersede the use of calf's feet. Where much fish is fried, the cook should save all the small pieces of bread, cuttings of toast, &c., and put them in a paper-bag in the oven to harden; when pounded in the mortar and sifted fine, they should be kept in a bottle or covered jar, and are very convenient for fried fish, or for strewing over hams and bacon. Wooden spoons are the best for cooking purposes, and it is a good plan to nail a piece of leather in some convenient place, with spaces between every nail, rather loose, to admit the handle of a spoon: they may be thus kept out of the way.

USEFUL ARTS.

Under this head we propose to give in the present number, a few details in regard to the fining of wines, and their manufacture from our native fruits. The following are valuable processes for clearing wines:—

Isingglass made from fish or from bones, whites of eggs, powdered gum, sugar-candy, and many other substances, cause the wine to perform a chymical operation, but they do not operate in the same manner with all wines. Fish or bone-isingglass put into the liquid, combines quickly with the *tannin* and dross, and by this union becomes heavier than the wine. This substance spreading through the liquor forms a sediment, and sinking to the bottom, carries with it all floating particles, discolorations, and undissolved tartar. Wines without tannin cannot be cleared with isingglass, as, wanting it, the isingglass dissolves in the liquid, and makes it more ropy, consequently less easily cleared by repose than before the introduction of the isingglass. It is the same in all wine entirely without tannin. Though the wine may contain a large portion of tannin, you are not to put a larger proportion of isingglass than experience has taught you is sufficient to clear with; but when there is not enough tannin, you must augment it, by putting the wine into a new cask, with oak-chips, cashew-nuts, &c., &c. You should commonly have an over-proportion of tannin. The tannin is not the solo part of the liquid that mixes itself with the isingglass; the alcohol acts also, and forms a sediment, but it is much weaker than the tannin, and leaves a large portion of the isingglass.

The whites of eggs combine with the tannin, but much sooner with the alcohol. It is best to clear wines devoid of tannin with eggs, otherwise the bad particles, which prevent the transparency, are not quickly enough dispersed. Little experience has been had of either gum or sugar-candy; they are only used when the substances now to be enumerated, are not to be obtained; they both act much sooner with the alcohol than the tannin.

Bone-isingglass, or gelly made from hartshorn shavings, has great advantages. Its action is similar to the fish-isingglass, combining principally with the tannin. Experiments that have frequently been made, prove that bone-isingglass clears a cask of wine equally well as whites of eggs, and that the discoloured particles, &c., forming the lees, are as abundant as those formed by the whites of eggs. The lees, being more compact, occupy less space, and consequently leave more liquid clear. In conclusion, we may state that the lees being close together are less easily disturbed, so that when the cask is

stooped for racking, the wine will run perfectly clear nearly to the bottom. On the contrary, in employing whites of eggs, the last bottles before you can perceive the lees come, are evidently less clear than the first. It is also very cheap.

In the city of Bordeaux, fifteen millions of eggs are used for clearing wine annually. They are preferable for red wines, but the common isingglass for white wines has the superiority. All experiments prove that the common isingglass produces greater clearness; however, we have room to hope good results from new trials.

The substances employed for clearing, which do not dissolve and only produce a mechanical action, are calcined flints reduced to powder; alabaster, not calcined, but pulverized. Pour one pint of either of the abovementioned substances into a cask containing two hundred and forty quarts of wine, which take care to stir well with a scourge. After diffusing its strength throughout the liquid, all the impurities that obscure the clearness will precipitate. Many persons aver that sand has the same effect, but it appears that sand sinks too rapidly to produce perfect clearness. Brown paper is used by an entire sheet being plaited up, and introduced at the bunghole; it spreads over the surface of the liquid: a second is put in as soon as the first is unfolded, and so on. These sheets, so disposed, only clear the extent of liquid they cover, that being clear and filtered. This method produces perfect brightness. If you can be sure the whole of the wine is strained, (which is very difficult to effect in a cask,) it answers pretty well. But it is well known that filtration diminishes the strength of the wine, and hurts the quality.

When wine has been left quietly in the cask five or six months, it is almost certain to have formed a sediment. If you have not a vessel ready to rack it into, you must clear it gently, and immerse a cleft-stick at the top of the cask, to disturb as little as possible the thick lees. It is not only proper to clear before bottling, but every time it is charged with impurities which obstruct the transparency, and, above all, if they do not clear naturally after some days' repose.

In the last case you must employ a different substance to that before used; if you have used whites of eggs, you must clear it the second time with isingglass, the former uniting with the fluid, and the other with the tannin.

To clear a cask of red wine of one hundred and sixty bottles, draw out four or five bottles, mix the white of four fresh eggs with half a bottle of this wine, and beat it well with a whip made of osier or birch twigs, put it into the cask at the bunghole, stir the liquor well with the cleft-stick or the scourge; on taking out the stick, pour the wine through a tunnel, and rinse the vessel with a little wine to wash the egg off the joints. After pouring in the wine, stir the liquid on all sides with the stick for one or two minutes; fill the cask, taking great care to beat round the bunghole to shake off the moss, and to chase away the bubbles of air; then replace the bung, wrapped up in a new piece of cloth or paper; after four or five days' repose, the wine will be clear and fit for bottling, but no harm will be contracted by allowing it to lie longer. Three whites of eggs will be sufficient to clear one hundred and sixty bottles. Many people beat the whites of eggs in spring water, which is lighter than river water, and therefore better.

Bone-isingglass is easily and quickly dissolved: put the isingglass into a coffeepot before the fire, and it will melt before the water boils. If the isingglass is steeped in cold water eight or ten hours it will dissolve by making the water lukewarm. When done put it into a vessel to beat as you would whites of eggs, add the quantity of water you wish, and put it into the cask.

To make three pints of size for clearing white wines, take two drachms of the whitest and most transparent isingglass; beat it well with a hammer on a block to make it unfold easily; tear the leaves into the smallest pieces possible that they may melt quickly; put them into an earthen dish with as much white wine as will cover them: the isingglass will absorb the wine in seven or eight hours, you must then add the same quantity. After infusing twenty-four hours they will be sufficiently diluted to form a gelly. Add to it three parts of a pint of lukewarm white wine; knead it well with your hands to break the little pieces not entirely dissolved; strain it through a clear linen cloth, and squeeze it to extract the gelly; beat it well with a birch twig for half an hour, and add white wine till it measures three pints; when quite cold, bottle it and cork it tight, and put it into the cellar until wanted: it will keep some months without altering. If the white wine you use is weak, add half a gill of brandy. Isingglass may be prepared with water only, but must be used directly, as it will corrupt in hot seasons. When you are in haste to clear white wines, you may dilute it more quickly by making it boil until quite melted; it must, however, be cold before it is used.

When the summer is cold and rainy, the grapes ripen with difficulty: frequently some are rotten before the others are ripe. The wine consequently, devoid of spirit, decomposes quickly, and will not clear however often you attempt it. A mixture with good wines may correct this, but it takes a great deal to produce a satisfactory result. When a wine will not clear for the abovementioned reason, draw forty or fifty pints of wine from a cask of two hundred and sixty bottles; bring thirty or forty pints to two hundred and twelve degrees, and return it boiling into the cask; clear at the same time with six whites of eggs, and stir the liquor as before. The cask must not be filled higher than within two inches of the bung. Bung it without knocking it in. The wine is not tardy in fermenting, and will be perfectly clear in a few days. If you have a great many casks in this state, you may heat the cellar sufficiently to produce fermentation, and to increase the alcohol. This method is adopted in Germany in cold years.

We will now furnish some brief data illustrative of the manufacture of native wines; and it is due to the fruits of our own climate to say that wine properly prepared from them is in many respects equal to that imported from other countries. We may commence with that made from grapes.

To prepare this wine, it will be necessary to add a gallon of water to a similar quantity of ripe grapes, and having bruised the latter let them stand a week without stirring, and draw the liquor off fine. To

every gallon of wine, put three pounds of lump sugar; put it into a vessel, but do not stop it till it has done fermenting; then stop it close, and in six months it will be fit to bottle.

A better wine, though smaller in quantity, will be made by leaving out the water, and diminishing the quantity of sugar. Water is only necessary where the juice is so scanty or so thick, as in cowslip, balm, or black-current wines, that it could not be used without it.

To prepare raisin wine:—To two hundred weight of bruised raisins, put about forty-four gallons of water, wine measure; stir it up well three or four times a day; let it stand about three weeks; then drain it off the raisins and tun it up; when you put it into the cask add about two quarts of brandy, which will keep it from "fretting."

Let it stand about ten or twelve months; then draw it off from the lees, rinse the cask and put it in again; then fine it down with three ounces of isingglass, and a quarter of a pound of sugar-candy, dissolved in some of the wine. To retrieve this wine, if it should by chance turn sour, replenish it with a further addition of raisins.

Another method may be pointed out:—Put two hundred weight of raisins with the stalks into a hogshead, and fill it almost with spring water; let it steep about twelve days, frequently stirring them about, and, after pouring the juice off, dress the raisins. The liquor should then be put together in a very clean vessel that will exactly contain it. You will find it ferment for some time, during which it should not be stirred; but when the noise ceases it must be stopped close, and stand for about six or seven months; and then, if it be tapped and it proves fine and clear, rack it off into another vessel of the same size; stop it up, and let it remain twelve or fourteen weeks longer; then bottle it off.

Blackberry, or strawberry wines may be made as follows:—Take of these berries in their proper season, moderately ripe, what quantity you please; press them as other berries; boil up water and honey, or water and fine sugar, to a considerable sweetness; and when it is well skimmed put the juice in and let it simmer to incorporate well with the water. When it has done so, take it off, let it cool, skim it again, and put it up in a barrel or close glazed earthen vessel to ferment and settle. To every gallon put half a pint of Malaga, and draw it off as clear as possible. Bottle it up and keep it cool for use.

To prepare cherry wine, take cherries nearly ripe of any red sort; clear them of the stalks and stones and put them into a glazed pan; then with your hands squeeze them to a pulp, or do it with a wooden ladle or presser. Let them continue twelve hours to ferment: then put them into a linen cloth, not two fine and press out the juice with a pressing-board. Let the liquor stand till the scum rises, and with a ladle take it clean off; then pour out the clearer part into a cask, where to each gallon put a pound of the best loaf sugar, and let it ferment seven or eight days; draw it off when you find it clear into less casks or bottles; keep it cool as other wines, and in ten or twelve weeks it will be ripe.

Wine may be prepared from peaches, nectarines, &c. When they are full of juice, pare them, and take the stones out; then slice them thin, and put about a gallon to two gallons of water, and a quart of white wine; put them over a fire gently to simmer a considerable time, till the sliced fruit become soft; then pour off the liquid part upon other peaches that have been so used and bruised, but not heated; let them stand twelve hours, sometimes stirring, and then pour out the liquid part, and press what remains through a fine hair bag, and put them together into a cask to ferment. Now add of loaf sugar, a pound and a half to each gallon; boil well an ounce of beaten cloves, in a quart of white wine, and add it, which will give a curious flavour.

Native champagne may thus be prepared:—Take gooseberries before they are ripe, crush them with a mallet in a wooden bowl, and to every gallon of fruit put a gallon of water; let it stand two days, stirring it well; squeeze the mixture well with your hands through a fine sieve; then measure the liquor, and to every gallon put three pounds and a half of loaf sugar; mix it well in the tub, and let it stand one day; put a bottle of the best brandy in the cask; leave the cask open five or six weeks, taking off the scum as it rises; then make it up, and let it stand one year in the barrel before being bottled. One pint of brandy should be put to seven gallons of liquor.

Plum wine may be made in our climate in most seasons. Mix those plums of a sweet taste with those that are somewhat sour, though they must be all inclining to ripeness; slit them in halves, so that the stones may be taken out; then mash them gently, and add a little water and honey; the better to moisten them, boil to every gallon of pulp a gallon of spring water, in which put a few bay leaves and cloves; add as much sugar as will well sweeten it; skim off the froth, and let it cool; then press the fruit, squeezing out the liquid part; strain all through a fine strainer, and put the water and juice together in a cask; let it stand and ferment three or four days; fine it with white sugar, flour, and whites of eggs; draw it off into bottles; then cork it up. In twelve days it will be ripe, and taste like sherry, or rather nearer to Canary.

Raspberry wine is exceedingly valuable for its medicinal properties. Take red raspberries, when they are nearly ripe, (for if they grow over ripe they will lose much of their pleasant scent,) and, after clearing the husks and stalks from them, soak them in a like quantity of water that has been boiled and sweetened with fine loaf sugar, a pound and a half to a gallon; when they are soaked about twelve hours, take them out, put them into a fine linen pressing-bag; press out the juice into the water; then boil them up together, and skim them well twice or thrice over a gentle fire; take off the vessel, and let the liquor cool, and, when the scum arises, take off all that you can, and pour off the liquor into a well-seasoned cask, or earthen vessel; then boil an ounce of mace quite down, if possible, in a pint of white wine, till the third part of the wine be consumed; strain it, and add it to the liquor: let it settle two days, and, when it has well settled and fermented, draw it off into a cask or bottles, and keep it in a cool place.

The French steep two gallons of raspberries in a gallon of sack twenty-four hours; then strain them, and put to the liquor three quarters of a pound of raisins, well-stoned, and let them continue four or five days, sometimes stirring them well; then pou

it off gendy, that the clearest may be taken away, and only the dregs and settlings remain, and bottle up what you pour off. If you find it not sweet enough for the palate, add some sugar, about half a pound to a gallon will be sufficient; keep it in a cool place.

We may point out three modes of preparing elderberry wine. Take elderberries, when pretty ripe, plucked from the green stalks, and press them so that the juice may freely run from them, which may be done in a cider-press, or between two heavy planks; or, for want of this convenience, you may mash them, and then it will run easily; put this juice in a well-seasoned cask, and to every barrel put three gallons of water with honey boiled in it, and add some ale-yest to make it ferment. Then, to clarify it, add flour, whites of eggs, and a little fixed nitre. When it has well fermented, and grows fine, draw it from the settlings, and keep it till spring; then to every barrel add five pounds of its own flowers, and as much loaf sugar, and let it stand seven days, at the end of which it will grow very rich, and have a good flavour.

By another method, when the elderberries are ripe, pick them, and put them into a stone jar; then set them in boiling water, or rather in an oven, not over hot, till the jar is as warm as you can well bear to touch it; take the berries and strain them through a sieve or coarse cloth, squeezing them hard, and pour the liquor into a kettle. Put it on the fire; let it boil, and put in as many pounds of Lisbon sugar as there are quarts of juice, and skim it often; then let it settle, and pour it off into a jar, and cover it close. Some manufacturers mix it with their raisin wine, by putting half a pint of the elder sirup to every gallon of wine.

In the third method, put the elderberries, when full ripe, into a stone jar, and set them in the oven, or a kettle of boiling water, till the jar is hot through; then take them out and strain them through a coarse cloth, wringing the berries, and put the juice into a clean kettle; to every quart of juice put a pound of fine Lisbon sugar; let it boil, and skim it well: when it is clear and fine, pour it into a jar; when cold, cover it close, and keep it till you make raisin wine; and to every gallon of wine, put half a pint of elder sirup.

Mint, balm, and other herb wines, may be briefly adverted to. Distil the herb in a common still: then add honey to it, and afterward refine it. Work it down by a due proportion of its own sirup; by this means the wine will become very fragrant, and contain the whole virtue of the herb; wormwood wine, wine of rue, cardamums, and such medicinal herbs, may be made by infusion only, in small white wines, cider, perry, or the like, adding a little sugar to them that they may be more agreeable to the taste. It may be proper to add that, without any of the inconveniences attendant on strong fermented wines they have great medicinal virtues.

An envious man waxeth lean with the fatness of his neighbours. Envy is the daughter of pride, the author of murder and revenge, the beginner of secret sedition, and the perpetual tormentor of virtue. Envy is the filthy slime of the soul: a venom, a poison, or quicksilver which consumeth the flesh and drieth up the marrow of the bones.

FARMERS' DEPARTMENT.

BEETS.

Beets furnish from a given surface of ground, a greater quantity of nutriment for horses and cattle than any other kind of forage. Wherever its cultivation is understood, it has the preference over all other roots. It succeeds in almost all soils, is but little affected by the vicissitudes of seasons, and prepares the ground very well for succeeding crops.

Throughout Belgium, and Germany, the leaves are from time to time, stripped off and given to the cattle, which eat them with avidity and easily fatten upon them. Fowls are also fed upon them. They are first hashed up, and then mixed with bran. Pigs eat them with a good relish. Milch cows, when fed upon them, fatten at the expense of their milk. The leaves are equally valuable in the fattening of cattle and sheep.

Beets should be gathered when the weather is dry, and put away in a dry state; and when prepared for cattle, they must be cut up fine with some suitable instrument, and may be given either alone or mixed with straw or hay.

They are equally fit for horses, with the precaution of adding a variety of cut straw and hay well mixed together. This food will preserve them strong and vigorous, as is well ascertained in Germany, where beets are much cultivated for this purpose.

For the fattening of a bullock, forty or fifty pounds of beets per day, mixed with five or six pounds of dry fodder, will accomplish the objects in the space of four months. Care must be taken to give it in three separations, since by feeding often and in small quantities at a time, the same amount of nutriment goes farther.

Finally—by facilitating the means of stable fattening, throughout the year, beets furnish a very important addition to this means of augmenting the mass of valuable manure.

They may serve also, on occasion, for the food of men; they are less subject to the vicissitudes of seasons than turnips, and their leaves supply for several months an excellent food for cattle. The root may be easily preserved during eight months of the year. They give milk an excellent taste and quality. Cattle eat them with avidity, and are never tired of them. The culture of no forage root can compare with that of the beet in the number of advantages which the industrious cultivator may derive from them. We cannot too strongly recommend the introduction of them into places where they are not already in vogue.

TURNIP CULTURE.

The turnip culture is unquestionably rapidly increasing among us. There will probably be quadruple the quantity grown this year, in the northern and western parts of the state, that was ever before produced in a season. We entertain this opinion from the unusual quantity of seed which has been sold at the seed-shops. This augurs well; for we are satisfied from fifteen years' experience, that there are few crops that make more than this for the interest of the farmer. As but few persons among us have as yet had experience in the culture of this

root, we subjoin some brief directions founded upon personal experience, in particular ruta baga crop.

The *soil* for turnips should be such as will grow good Indian corn. It should be rich and dry, and, with these qualifications, the more that sand preponderates the better. Clay is the worst, and wet soil does not answer much better.

Preparation. Our general practice has been to manure well a piece of pasture, or a clover lay from which the hay has been just cut, the last of June, plough it handsomely and harrow it well. A clover lay is preferable, as old sod does not rot, especially in a dry season as was the case last year, in time for the wants of the crop. It is the practice of many to lay the ground in ridges of two and a half or three feet, and to cover the manure in these with a plough. This plan cannot be readily adopted upon a sward, but upon grounds under previous tillage, and to correct a wet soil, or economize manure, it is often the preferable mode.

Sowing, &c. The seed may be sown broad-cast or in drills. The latter is far the best mode, and the drill-barrow is an important aid in the process. The sooner the operations of manuring, ploughing, harrowing, and sowing, succeed each other the better, as seeds germinate soonest in fresh-ploughed ground. If the drill-barrow is employed, a trace-chain may be passed round the coulter, and the ends suffered to drag after it, which will cover the seeds sufficiently. Sometimes a small roller is attached to the barrow, to press the earth upon the seeds. We allow a pound of seed to the acre, though half this quantity, well distributed, is enough. The seed should be sown from the twentieth of June to the fifth of July. If sown earlier, the turnip is apt to become hollow before harvesting, the water gets in and induces rot. We have never succeeded well in transplanting.

Culture. We use a cultivator, that may be graduated to the space between the rows, drawn by a horse, as soon the plants can be distinguished. This is repeated in a few days, twice in a space, and the implement carried so close as to leave only strips of from two to six inches, which are then thoroughly cleansed with a skim-hoe, and the plants thinned to eight and ten inches distance. The cultivators soon follow for a third time, and if necessary, the skim-hoe, when the crop is generally left till harvest; the great aim is to extirpate the weeds, to do this while they are small, and to pulverize the soil.

Harvesting is postponed as long as the season will permit. The roots are then pulled up, and laid on the ground, the top of two rows toward each other. The pullers are followed by a man or boy with a billhook, who, with a light blow, cuts the tops as fast as three or four can pull. Three men will in this way harvest, of a good crop, three hundred bushels in a day. Another, and we think a better mode, is, for the puller, with a billhook or heavy knife in his right hand, to grasp and draw the turnip with his left, to strike off the tap-root as soon as it is raised a little above the ground, and then with another quick stroke at the crown, sever the top from the root. This is done with great expedition, by an expert hand. The tap-root is acrid, and loaded with earth, and not worth preserving. The tops are gathered into heaps and taken to the yard in carts, daily, for the stock, until they are consumed. An acre will give from five to ten loads of tops. The roots are buried in the field, if dry—the pits, two, or two and a half feet broad, covered with straw and earth, and as cold weather approaches, with manure, to prevent frost. With a crowbar, make one or more holes on the crown of the pit into which a whisp of straw may be inserted, so as to let off the rarefied air, and prevent the roots from heating.

Use. The tops serve for autumn. As soon as the mild weather of spring will justify, we break through the frost, and take the contents of a pit to the barn, and cover the roots with straw or hay. From thence they are fed to our stock, being first chopped up with a snick, (Dutch meat-chopper,) or spade. They are excellent for sheep, especially for ewes that have young, and hogs and horses eat them freely. Steamed, they are used in the north of England for horses as a substitute for grain. We have fattened sheep and bullocks upon them with profit. They constitute, particularly from February to June, an excellent culinary vegetable for the table. A bullock will thrive fast upon two bushels a day, and will consume hardly any hay, and require no drink.

Produce and cost. Our average crop has been six hundred bushels per acre, though others have raised much heavier products. The costs in manure and labour, when they are secured for winter, has been from two to three cents per bushel.

Cattle or sheep, fattened upon this root, should be kept from eating them for eight or ten days before they are slaughtered; otherwise the meat will have an unpleasant flavour.

INDIAN CORN.

All, or nearly all, the accounts, that are published of great products of Indian corn, agree in two particulars, viz.: in not using the plough in the after culture, and in not earthing, or but very slightly, the hills. These results go to demonstrate, that the *entire* roots are essential to the vigour of the crop; and that roots, to enable them to perform their functions as nature designed, must be near the surface. If the roots are severed with the plough, in dressing the crop, the plants are deprived of a portion of their nourishment; and if they are buried deep by hilling, the plant is partially exhausted in throwing out a new set near the surface, where alone they can perform all their offices. There is another material advantage in this mode of cultivating the corn crop—it saves a vast deal of manual labour.

There is another question of interest to farmers, which relates to the mode of harvesting the crop, that is, whether it is best to top the stocks, or cut the whole at the ground when the grain has fully ripened. According to the experiments of Mr. Clark, of Northampton, one of the best practical farmers of our country, and of other gentlemen, grain suffers a diminution of six or eight bushels the acre, by topping the stocks; and there seems to be no counterbalancing benefit in the fodder, unless at the expense of carrying the stocks to the borders of the field, that they may be secured before they become blanched and half ruined. And it is no protection against early autumnal frosts, but rather exposes unripened grain to be more injured. Hence, so far as regards these two modes, all who have made a comparison,

seem to concur in the opinion, that stripping the corn of its tops and leaves is a bad practice. William Carmichael, of Virginia, has given us in the Farmer's Register, his experiments in this matter, which go to corroborate the conclusion we have drawn. He took, promiscuously, one hundred ears from corn that had been topped, and one hundred ears from that which had not been topped, growing side by side. The first weighed, on the cob, fifty pounds—shelled, forty-one pounds, and measured twenty-one quarts, one pint. The other, fifty-four pounds—shelled, forty-six pounds, and measured twenty-six quarts—showing a difference of nearly one fifth in favour of unstripped or untopped corn. The fact is, that topping not only prevents the further elaboration of the sap, which can only take place in the leaves, and which is necessary for the growth of the corn, but it deprives the grain of much that is already elaborated, and on its way to the grain. If a fruit-tree is deprived of its leaves, before the fruit has attained its growth, or mature flavour, the fruit will no longer grow, nor will it attain high flavour, for its supply of elaborated food, or vegetable blood, is cut off by the loss of leaves. We have noticed this particularly in the plum.

Satisfactory experiments have not been made to determine, whether it is most advantageous to cut the crop when the grain is merely glazed, or to wait till it is perfectly ripe. This will depend upon the amount of loss, if any, in the grain, by early harvesting—the relative value of the grain and fodder, and the prospect of both being injured by early frosts—for neither are liable to suffer from frost after the crop has been cut and put into shooks. It is to be noticed, that, in early cutting, the stalks are succulent, and abound in elaborated sap, on its descent from the leaves to the grain, and that this supply of food to the grain continues to flow probably for some days after the corn is in the shook, and if so, the grain itself continues to improve, though we think it likely that the corn undergoes some trifling diminution. But if frost is likely to intervene before the complete maturity of the crop, there is no doubt but the corn will suffer less in shook than it will standing, while the fodder will be materially injured by frost. Admitting that there is a small loss in grain by early cutting, though it is undoubtedly less than when it is topped, the difference in the value of the fodder, under the two modes of management, is vastly in favour of early harvesting. We do not pretend to calculate to a nicety the difference in nutritious properties, of cornstalks cut in a succulent state, early in September, well-cured and well-housed, and those left standing till October or November in the field, but we should think to fifty per cent. Well-cured cornstalks afford an excellent winter food for neat cattle; and when fodder is likely to be in demand, they may be made to contribute largely to the profits of the farm. Several of our acquaintances have kept their neat stock almost entirely upon this fodder during the past winter, and we have done the like, having first cut ours in a cutting machine; and so far as we can learn, the cattle kept upon them are in excellent condition.

The preceding considerations justify us in recommending, that in the management of the Indian corn crop, the following rules be observed, at least partially, so far as to test their correctness:—

1. That the corn harrow and cultivator be substituted for the plough in the culture of the crop.
2. That the plants be not hilled, or but slightly so—this not to prevent the soil being often stirred and kept clean. And,
3. That in harvesting, the crop be cut at the ground as soon as the grain is glazed. Cultivator.

NEW YORK LYCEUM OF NATURAL HISTORY.

We alluded, in a former number of the Family Magazine, to the erection of a new edifice appropriated to the several objects pursued by the Lyceum of Natural History in the city of New York. We esteemed ourselves fortunate in being present at the *opening address* of the society, which was delivered, agreeably to appointment, on the evening of Dec. 28, 1836, by Prof. John W. Francis, M. D., and we are compelled by a sense of justice to the orator on that occasion, as well as by a desire to farther the great interests of the Lyceum, to state, that the address was worthy of the occasion, and of the high reputation of the speaker. The theme selected for the special purpose of making better known the important purposes for which the Lyceum was organized was, "*The Natural History and Physical Resources of the United States;*" and in treating of this wide and almost unlimited subject, Dr. Francis displayed an intimate acquaintance with the numerous and varied topicks which it embraced, highly honourable to his erudition and attainments, and well calculated to place in the strongest possible light the advantages arising from the study, and promotion of American Natural History. In fact, before hearing the learned and interesting discourse of Dr. Francis, we were not aware, ardent as is our love of Natural History, that America had so many claims to the respect and gratitude of the scientifick world, and we congratulate the Lyceum upon this brilliant effort of one of its members, which reflects so much honour upon them as a body, and which when published will add much to the reputation of the Institution, and secure for its author, among naturalists, a station as distinguished as that he now occupies in the medical world. We agree so fully with the opinions published in the New York American, on the occasion of this discourse, that we are induced to transcribe them:—

"It is sometimes said that the character of New York society is frivolous, and that fashion only, and the amusements of fashion, interest those whose means and position enable them to seek instruction and amusement where they list. We have always thought this unjust, and are every year more and more confirmed in the impression. Who, for instance, that heard the introductory address delivered some days ago, upon the opening of the New York Lyceum, by Dr. John W. Francis, and marked the riveted attention with which, for two hours and a half, he was listened to by a brilliant, intelligent, and crowded audience, of both sexes, would doubt, even though he should meet, as he probably might, the greater portion of this same audience next night at a ball, that the imputation of frivolity upon them was unjust? The theme of Dr. Francis was the natural and physical resources of the United States, which he made a framework for a vast deal of

knowledge, personal anecdote, biographical sketches, and useful information. To have succeeded as he did, in holding breathless for such an unusually long time, such an audience, is not more honourable to him, than to those who listened—and we refer to the fact with pleasure, as illustrating the useful *influence of lectures.*"

We are happy to learn that this discourse is in the press: its great importance justifies its extensive diffusion, and the mass of information contained in it, the immense number of facts which are brought forward, as well as the attractive manner in which they are presented, will command the attention of American and European naturalists.

The following extracts will enable our readers to form, in part, an opinion for themselves of the merits of this address:—

"To select a theme becoming the present occasion, has not been without its difficulties. Nothing perhaps would be so appropriate as an exposition of the present state of Natural Science abroad: embracing a cursory view of the early condition of physical knowledge by its primary cultivators and an examination of the present respective merits of the nations of Great Britain and the European continent. To present but a concise summary of this character, calls for richer materials than I possess; and justly executed, would trespass on time which we have not at command. The inevitable consequence of a mere outline of such a survey, however, if impartially and judiciously drawn, could not fail to strengthen our admiration of the dignity and importance of Natural History as connected with the interests of human society, and raise our estimate of the talents which have been appropriated to its elucidation. It would liberalize our feelings, warm our charities, and counteract the prejudices which unfortunately too often beset even the most enlightened cosmopolite philosopher.

In instituting a comparison of the respective theories of the earth, we would be bound to reduce the speculations of Geologists, to the actual condition of the globe; and whether we enlisted as disciples of Neptune or Vulcan, of the Wernerian or of the Huttonian school, while scrutinizing the services of the ingenious writers who have appeared on the subject with all the lights of modern science, we would be brought to the conclusion of the extraordinary conformity of facts, the most recent and abundant, to the cosmogony of the great Jewish lawgiver. In descanting on another almost boundless topick, zoology, we would be struck with the wonderful sagacity and acumen of Aristotle, the first classifier of this department of physical study. We would be taught the great excellence to which it has attained in our own day. A discussion not without practical instruction would here very properly offer itself. The arrangement of the several branches of this division of Natural History, has vexed minds the strongest for accurate discrimination, and by consequence, the cogitative powers have been subjected to a logick as astute as any the schoolmen may have formed. The Linnæan division *mammalia*, among the primates, it is familiarly known, associates man with the monkey and the bat, a classification not overflattering to the lord of the creation. This fancied chain of being, on what poets and philosophers have written so ingeniously, which has occasioned the association of minerals with vegetables, vegetables with animals, and again animals with the Creator, has been the efficient cause of the nomenclature to which I now allude. But even the metaphysicks of Bonnet are not to be allowed to supply the chasms originating from our incapacities; neither an artificial nor a natural arrangement of the characteristick organs of animals ought to tolerate such freedom; an improved physiology discards it, and the inherent dignity of man, as a moral and accountable being, renders demonstrative the difference between the operations of human reason and the impulses of the instinctive faculty of brutes. A later and more successful division of Zoology by the immortal Cuvier, rests on the nervous and sensorial, and not on the circulatory and respiratory systems: and in order 1, *Bimana*, we find the species *man* placed at the head of the living creation and no longer *primus inter pares*. Nor would our labours here end. Though we be disqualified from speaking with oracular precision, Mineralogy would demand of us, that the homage be rendered to Theophrastus and the elder Pliny among the ancients, while the vast accessions to this science by the enterprise and sagacity of the moderns, have given it the certainty of experimental knowledge and placed this branch of investigation for its importance to the elegant arts and useful resources of man as second to none in the volume of nature. In a comparative estimate of the contributions of eminent men in this extensive field of productive effort, imaginative Germany, philosophick France, and melodious Italy, would prefer the claims of their respective sons in accents too loud and too continuous to be resisted.

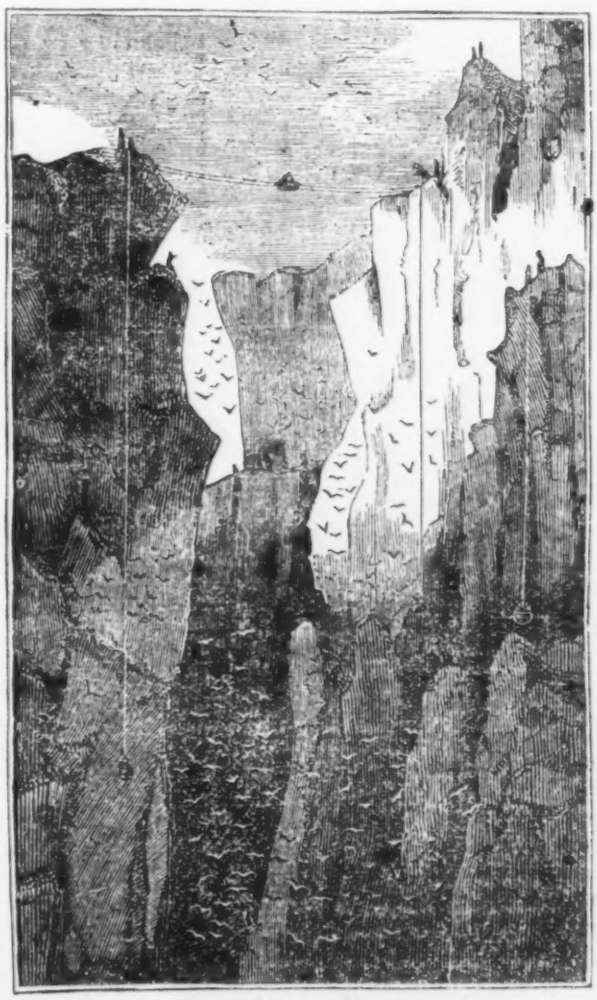
The vegetable kingdom in like manner, if properly treated, might solicit as her due our ardent contemplation, and invoke the sincerest plaudits, by her threefold claims, her precise classical terminology, the copiousness of her treasures and her extensive utility. Botany, sacred by its antiquity, would summon our best efforts in its behalf, by the dominion which it holds in the breast of every lover of the bounties of creation, as a study sanative as Hygeia herself, in its influence on her worshippers and rich in variegated and attractive formations. Who would not aspire to participate in recreations such as those in which a Ray, an Evelyn, and a Tournefort delighted; who would not strive to master a pursuit which by its quotidean discoveries and advancements repays its votaries with new truths; and enter the list of that mighty phalanx of meritorious individuals, who, in different ages and nations, have revealed its secrets and preferred its excellence? Such a review of the progress and present state of the physical sciences, would teach us the most pleasing and instructive part of history; the progressive development of knowledge, and the advancement of our species in arts, science and civilization: while we would indulge a juster and higher opinion of the capabilities and arts of the age in which we live. And though we might be reluctant to look to Hesiod or Columella for principles in practical agriculture, or to Aldrovandus or Rhondeletius for minute Anatomy, or to Agricola for the philosophy of mineralogical science, we would, by the study of the writings of these master-minds, the better comprehend the obligations which each successive age owes to its predecessor, and ever bear in grateful recollection

the contributors who have reared to its present lofty state the intellectual fabrick of man. It may justly be said, that he who should execute such a theme would require the bow of Ulysses. But let us leave the acquirements and the wisdom of venerable Europe, and turn our reflections to a consideration of the New World."

TAKING OF BIRDS' EGGS.

It is chiefly on the most rugged shores of Scotland, or on the more rugged rocks of the several adjacent islands, or still further to the north, in the Shetland or Ferroe islands, that the "dreadful trade" of egging is carried on in the perfection of its horrours; though in some parts of Wales, as, for instance, near the South Stack, and the Needle rocks in the Isle of Wight, adventurous climbers will occasionally exhibit feats of perilous achievement, quite sufficient to satisfy most beholders. In some parts of the coast, immense mounds or fragments of rocks have been cut off from the mainland by terrible convulsions of nature, or the incessant wearing of waves through fissures and narrow channels for successive ages. On a few of these spots, sea-birds, for a time, rested securely, till some bold adventurers devised the means of invading their territories, crossing the space by means of cradles, suspended on ropes thrown across.

At Carrick-a-Reade, near the Giant's Causeway in Ireland, and in the Shetland islands, two of these airy conveyances are still in use, and, until a suspension-bridge was erected a few years ago, a third, and tolerably commodious and safe one, existed, connecting the South Stack rock with Holyhead mountain, in lieu of an original and far more primitive machine, which was, for a time, of necessity resorted to by those who wished to inspect the works on the island. It consisted of a small box, suspended on two strong ropes swung across a chasm of about a hundred and fifty feet, commencing its journey from a projecting point, about halfway down the precipice of the mainland, from which the passenger was vaulted over the gulf, by a rope leading to the island: a journey which, together with the scrambling down the unprotected face of the precipice, was sufficiently disagreeable and alarming, to convey a correct idea of the far more terrifick communications adopted in less frequented places; such as that in Shetland, between the headland of Bressa, a sort of column rising out of the sea to the height of three or four hundred feet above its level, and not more than four yards in diameter on its summit. It is said that this cradle, by which the inhabitants pass easily and readily, and, from habit, without any fear



[Egging.]

of danger, was erected by a bold man in the neighbourhood, who mounted the hitherto supposed inaccessible sides of the rock. A great number of people were assembled, expecting to see him lose his footing, and fall headlong: however, he succeeded, and when at the top, waved his hat, and cheered his friends; and then having, with their assistance on the opposite side, arranged the ropes and cradle, might have been the first to cross safely and successfully over his own bridge—but being foolhardy, and determined to descend by the way he had got up, before he had accomplished a third of the distance, his foot slipped, and he was dashed to pieces.

But though here and there, accommodations like this, or others, for facilitating the visits of the bird-catchers to their particular haunts, may be at hand, by far the greater number are taken by enterprising individuals, who have only their own steadiness of head, strength of muscle, and dauntless spirit, to ensure success. We will describe the means and proceedings of those in St. Kilda, a small speck of an island, the most westward and distant, (save a still smaller needle-pointed uninhabited coast, called Rockall,) in the midst of the Atlantick ocean, containing a few people, who, from infancy accustomed to precipices, drop from crag to crag, as fearlessly as the birds themselves. Their great dependance is upon ropes of two sorts; one made of hides—the other of hair of cows' tails, all of the same thickness. The former are the most ancient, and still continue in the greatest esteem, as being stronger, and less liable to wear away, or be cut by rubbing against the sharp edges of rocks. These ropes are of various lengths, from ninety to a hundred and twenty, and nearly two hundred feet in length, and about three inches in circumference. Those of hide are made of cows' and sheep's hides mixed together. The hide of the sheep, after being cut into narrow slips, is plated over with a broader slip of cow's hide. Two of these are then twisted together; so that the rope, when untwisted, is found to consist of two parts, and each of these contains a length of sheep-skin, covered with cow's hide. For the best, they will ask about thirteen pence a fathom, at which price they sell them to each other.

So valuable are these ropes, that one of them forms the marriage-portion of a St. Kilda girl; and, to this secluded people, to whom moneyed wealth is little known, an article on which, often life itself, and all its comforts, more or less depend, is far beyond gold and jewels.

The favourite resort for sea-fowl, particularly the oily Fulmars, is a tremendous precipice, about thirteen hundred feet high, formed by the abrupt termination of Conachan, the most elevated hill in the island, and supposed to be the loftiest precipitous face of rock in Britain, and so tremendous, that one who was accustomed to regard such sights with indifference, dared not venture to the edge of it alone; but held by two of the islanders, he looked over into what might be termed a world of rolling mists and contending clouds. As these occasionally broke and dispersed, the ocean was disclosed below, but at so great a depth, that even the roaring of its surf, dashing with fury against the rocks, and rushing, with a noise like thunder, into the caverns it had formed, was unheard at this stupendous height. The brink was wet and slippery—the rocks perpendicular from their summit to their base; and yet, upon this treacherous surface, the St. Kilda people approached, and sat upon the extremest verge; the youngest of them even creeping down a little way from the top, after eggs or birds, building in the higher range, which they take in great numbers, by means of a slender pole like a fishing-rod, at the end of which was fixed a noose of cow-hair, stiffened at one end with the feather of a Solan goose.

But these pranks of the young, are nothing when compared to the fearful feats of the older and more experienced practitioner. Several ropes of hide and hair are first tied together to increase the depth of his descent. One extremity of these ropes, so connected, is of hide, and the end is fastened, like a girdle, round his waist. The other extremity is then let down the precipice, to a considerable depth, by the adventurer himself, standing at the edge: when, giving the middle of the rope to a single man, he descends, always holding by one part of the rope, as he lets himself down by the other, and supported from falling only by the man above, who has no part of the rope fastened to him, but holds it merely in his hands, and sometimes supports his comrade by one hand alone, looking at the same time over the precipice, without any stay for his feet, and conversing with the other, as he descends to a depth of nearly four hundred feet. A bird-catcher, on finding himself among the Fulmar's nests, took four, and with two in each hand, contrived, nevertheless, to hold the rope as he ascended; and, striking his foot against the rock, threw himself out from the face of the precipice, and returning with a bound, would again fly out, capering and shouting, and playing all sorts of tricks. Frighful as such a display must be to those unaccustomed to it, accidents are extremely rare; and the St. Kildians seem to think the possibility of a fatal termination to these exploits almost out of the question.

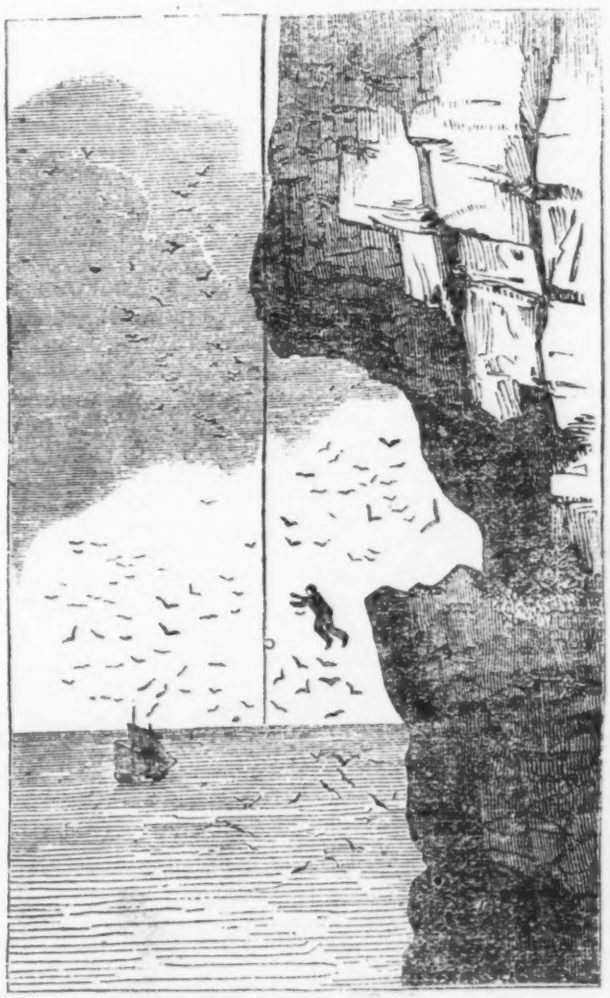
It is, indeed, astonishing to what a degree habit and practice, with steady nerves, may remove danger. From the island of the South Stack abovementioned, boys may be seen frequently scrambling by themselves, or held on by an urchin or two of their own age, letting themselves down the picturesque precipice opposite the island, by a piece of rope so slender, and apparently rotten, that the wonder is why it does not snap at the first strain. Yet, without a particle of fear, heedless of consequences, they will swing themselves to a ledge barely wide enough to admit the foot of a goat, and thence pick their way with or without the rope, to pillage the nest of a gull, which, if aware of its own powers, might flap them headlong to the bottom.

Here too, as in St. Kilda, accidents are said to be of rare occurrence, though, of course, they do occasionally happen; but escapes, sufficiently appalling to make the blood run cold to hear of, are common enough.

The first we shall mention happened about two miles from the South Stack, on the rocky coast of Rhoscolin. A lady, living near the spot, sent a boy in search of samphire, with a trusty servant to hold the rope at the top. While the boy was dangling midway between sky and water, the servant, who was unused to his situation, whether owing to a sudden dizziness from looking downward on the boy's motions, or misgivings as to his own powers

of holding him up, felt a cold, sickly shivering creep over him, accompanied with a certainty that he was about to faint; the inevitable consequence of which, he had sense enough left to know, would be the certain death of the boy, and, in all probability, of himself, as, in the act of fainting, it was most likely he would fall forward, and follow the rope and boy down the precipice. In this dilemma, he uttered a loud despairing scream, which was fortunately heard by a woman working in an adjoining field, who, running up, was just in time to catch the rope, as the fainting man fell senseless at her feet.

We shall add two more, equally hazardous, and one fatal. Many bird-catchers go on these expeditions without any companion to hold the rope or assist them. It was on such a solitary excursion, that a man, having fastened his rope to a stake on the top, let himself down far below; and, in his ardour for collecting birds and eggs, followed the course of a ledge, beneath a mass of overhanging rock: unfortunately he had omitted to take the usual precaution of tying the rope round his body, but held it carelessly in his hand; when, in a luckless moment, as he was busily engaged in pillaging a nest, it slipped from his grasp, and, after swinging backward and forward three or four times, without coming within reach, at last became stationary over the ledge of the projecting rock, leaving the bird-catcher apparently without a chance of escape—for to ascend the precipice without a rope was impossible, and none were near to hear his cries, or afford him help. What was to be done? Death stared him in the face. After a few minutes' pause, he made up his mind. By a desperate leap he might regain the rope, but if he failed, and, at the distance at which it hung, the chances were against him, his fate was certain, amid the pointed crags ready to receive him, over which the waves were dashing, far—far below. Collecting, therefore, all his strength, with outstretched arms, he sprang from the rock—and lived to tell the tale—for the rope was caught!



[Perilous Leap of a Bird-Catcher.]

The next occurred at St. Kilda; where, among other modes of catching the sea-fowl, that of setting gins or nooses is adopted. They are fixed in various places frequented by the birds. In one of these, set upon a ledge, a hundred and twenty feet above the sea, a bird-catcher entangled his foot, and not being at the moment aware of it, was, on moving onward, tripped up, and precipitated over the rock, where he hung suspended. He, too, as in the preceding case, had no companion; and, to add to his misfortune, darkness was at hand, leaving little prospect of his being discovered before morning. In vain he exerted himself to bend upward, so as to reach the noose or grapple the rock. After a few

fruitless efforts, his strength was exhausted, and in this dreadful situation, expecting, moreover, that the noose might give way every instant, did he pass a long night. At early dawn, by good fortune, his shouts were heard by a neighbour, who rescued him from his perilous situation.

The last we shall relate, terminated in a more awful manner. A father and two sons were out together, and, having firmly attached their rope at the summit of a precipice, descended, on their usual occupation. Having collected as many birds and eggs as they could carry, they were all three ascending by the rope—the eldest of the sons first—his brother, a fathom or two below him; and the father following last. They had made considerable progress, when the elder son looking upward, perceived the strands of the rope grinding against a sharp edge of rock, and gradually giving way. He immediately reported the alarming fact. "Will it hold together till we can gain the summit?" asked the father. "It will not hold another minute," was the reply; "our triple weight is loosening it rapidly!" "Will it hold one?" said the father. "It is as much as it can do," replied the son—"even that is but doubtful." "There is then a chance, at least, of one of us being saved; draw your knife, and cut away below!" was the cool and intrepid order of the parent. "Exert yourself—you may yet escape, and live to comfort your mother!" There was no time for discussion or further hesitation. The son looked up once more, but the edge of rock was cutting its way, and the rope had nearly severed. The knife was drawn—the rope was divided—and his father and brother were launched into eternity!

THE CITY OF NEW YORK.

Atlantick city! brightly art thou beaming,
Throwing thy kindling ray o'er land and sea,
Enlightening myriads with thy far-spread gleaming,
Home of the free.

Giant of wealth! thine arm of mighty power
Sweeps to thy coffers gold from distant shores;
While on each asking hand thy Danae shower,
Its treasures pours.

Religion's nurse! on spire and towers still flying,
The Christian standard floats unfurled, and free;
Never, our bold forefathers' claim denying,
Mind's liberty!

Favourite of nature! on thy green shore dwelling,
Bright spring-flowers bloom—the wild birds carol gay,
And the green ocean laves thy broad pier, smiling
In noisy play.

Haven of ships! thy storm-tried masts are standing,
With their tall foreheads to the meeting clouds,
A floating world—the billowy world commanding,
With their tough shrouds.

Siren of pleasure! in thy halls bright glancing,
Youth gayly springs, and prunes her buoyant wing:
Do purity and truth, the mirth enhancing,
Their chorus bring?

Oh, mighty city! to thy trust is given
A moral influence—a Christian sway!
Souls throng thy busy streets to people heaven—
Let them not stay.

Atlantick cities! rouse ye all from sleeping
Sin's deadly sleep, lest drops of grief be wrung,
From Him who o'er Judea sadly weeping,
Her death-note sung.

Southern Rose.

AMERICAN CAVERNS.

The Great cave of Indiana, is one the most interesting objects to which the traveller in these regions can make a visit. It is distant from the pleasant little town of Corydon, the seat of justice of Harrison county, and former capital of the state, about eleven miles. It was a fine June morning when I started from this village with the intention of visiting it. The road passes through the barrens, presenting the usual views of woody islands, wide openings covered with flowers, deep sinks, thick rows of bushes and tangled vines shading the path, and a few clearings, with the burnt trees rising like tall black masts, from seas of verdure. Seven miles from the town, near Wilson's Mill, the scenery is finely picturesque at the point where the road approaches Blue river. On the right is a precipitous ledge crowned with trees, and garlanded with creeping tendrils, and flowering shrubs: at the left are the clear blue waters of the stream, visible for a mile, enclosing several small islands. Opposite are seen the magnificent sycamores of the river bottom, their boughs interlaced by gigantick grape-vines; and beyond, a steep bluff terminates the view. In front, is a small plain, and the mill, its bridge, a plantation, and a variety of objects, complete the picture. Here I was cordially invited by Mr. Wilson, to alight and visit a neighbouring cave, which he described as equally interesting with one of which I was in search. We employed the time which remained till dinner, in visiting a remarkable spring, from which the stream proceeds that turns his mill. It is of a circular form, about one hundred and fifty feet in diameter, and of immense depth. The spectator who rests on its still bosom appears to be suspended between two firmaments, such is its clearness: and the fish with which it abounds, are seen at the distance of many feet, as if sporting in air. Having dined and fortified ourselves with some excellent apple-brandy, (excuse us, readers of the temperance society! agues are sometimes caught by such excursions in hot weather,) we rode to the spot. The entrance is by an aperture like a well, about eight feet deep, which forms a semicircle around the mouth. Immediately within, the height is ten or twelve, and the breadth fifty feet. This is the average size through its whole extent, which is probably half a mile. The bottom and roof are of solid rock, dry, and free from earth. Stalactites make their appearance at the very outset, and white concretions of lime, of marble hardness, rise at short intervals; one, to which the name of the tower of Babel has been given, is of a cylindrical shape, and has the appearance of many small pillars, winding spirally around it. Through the whole distance it is necessary to stoop but once, and then only for a short space. At the farther end, the ceiling becomes higher, and the width extends to perhaps one hundred feet. Language is inadequate to describe the dazzling splendour of this part when brilliantly illuminated. Thousands of sparry stalactites depend from above, some red, some yellow, some orange, some white, most of them transparent, many resembling branches, and others glistening as if varnished with diamonds. The pavement is formed of hard-knobbed concretions of a lemon colour, and a pearly lustre, covered with shining fragments of spar, and every cavity lined with crystals, and gleaming

like snow-crust in the sunshine; around are seen cones of the purest white, and massy pillars, some a foot in diameter, supporting the roof, and marble incrustations, like heavy drapery, sweeping down from its border.

On one side is the "curtained room," almost separated from the rest of the cavern by enormous columns, resembling the pipes of a huge organ; on the other, a grand mass, resembling a prodigious snow-heap, presents a majestick appearance, and its large crystals seem as if chiselled by the hand of man. This, from a fancied resemblance of its top to a cap, is called the "old priest." All around is deep silence undisturbed, save by a tinkling sound of the drops, as they slowly gather, and fall from the hollow tubes. The spars are of three kinds: the icicles which project from the roof, and form the numerous columns, and which show in the interiour, concentrick rings like the sawed-off branch of a tree, and are often hollow—a glistening incrustation covering the loose stones, and the walls—the knobbed bunches of light yellow which form the flooring; all these, when fractured, which is not easily effected, display the same resplendent crystalline structure, and when struck, emit a glassy sound. They are of the kind by mineralogists termed calc sinter, and resemble those brought from the grotto of Antiparos, but are more elegant than any that I have seen from thence. The cavern is often called "Pitman's Cave," as that is the owner's name, but "Oberon's Grotto," as it is sometimes styled, is far more appropriate. The most glowing visions of oriental fancy could not equal the magnificence of this subterraneous palace, when its gorgeous decorations are vividly lighted up. No one, who has any taste for the wondrous exhibitions of nature, should pass "Oberon's Grotto," without surveying its beauties. There is a romantick tradition connected with its discovery, which is generally credited, and the names of the parties are still told. A bear, pursued by a hunting-party, took shelter in this cavern: none of them dared to venture down. At length, a young lady, daughter to one of them, descended and shot the ferocious animal in its den. I trust it will not diminish the interest of the legend with my fair readers, when I relate that her father is said to have offered her a calico gown, as an inducement. Calico gowns were rare and expensive articles in those days: and it must ever remain in doubt, whether the love of dress, or the heroism of the western females of that day, influenced her decision. It was a perilous adventure, and one which few would wish to repeat, even for a calico gown.

The next morning, leaving my hospitable hosts, who well deserved the appellation which a neighbour bestowed upon them, of "whole-souled fellows," I rode to the Great Cave, four miles further. Blue river, which it is necessary to cross in going, is a lovely stream, about fifty yards wide, through whose transparent blue waters, innumerable fish are seen sporting above its bright shells. Mr. Rothrick, a gentleman who resided near the cave, politely accompanied me. It lies in a region of broken country, possessing a few low bushes and scattered trees, to which barren ridges and a stony soil give a strange air of loneliness and desolation. The entrance is on the side of a small hill, and though wide, obliges one to stoop. After entering, the appearance is that of a vast excavation, whose bounds are scarcely discernible by the united aid of the torches, and the faint gleamings of daylight conveyed through the mouth. Its bottom, covered to the depth of several inches by the pulverized earth, intermixed with shining particles of Epsom salt, shelves gradually downward for some distance. It then becomes more level, covered with flat fragments of rock, and thus continues till the cave divides. The right branch soon terminates. The left passes on, sometimes through long-arched passages, sometimes over high hills, and across wide gullies for a great distance. At length, after descending abruptly into a deep hollow, you find an immense pile of fragments, heaped confusedly on each other, blocking up the way. After ascending this with considerable exertion, you proceed by a rocky terrace, curving around the wall on one side, and a dark chasm on the other. Then, by a ladder of a few rounds, you reach a vaulted gallery, nearly at right angles with the route by which you have come. Now stop—wave your torches of poplar bark briskly, and as the flames burst freely out, survey the wild, the almost fearful sublimity of the scene around you. In front, and on each side, the rough walls overhang the path, and vast prominences of rock jet out, seeming as if a slight disturbance of the oppressive silence of the place, would call them down in fearful avalanches. At your feet is a frightful abyss, which the eye vainly strives to explore: and far off in the distant obscurity is dimly seen the irregular mound over which you have reached your present station. High above, you have indistinct glimpses of the smooth limestone ceiling, whose mingled shades of blue and gray, remind one of a clouded sky, seen at midnight, from the recesses of some lonely ravine. Behind is the regular arch-way, whose sides and roof of beautifully variegated limestone, contrast strikingly with the sombre aspect of the objects without. Through this, the way continues to the "creeping place," where, as the name denotes, it is necessary to creep a few feet. Beyond this for the distance of a mile and a quarter, the path is still more rugged and clogged with ruins, but with the same variety of hills, hollows, plains and tunnels, to the very end. Near this, the eye of the visiter, fatigued with dwelling on a succession of objects of a rude and gloomy character, is agreeably relieved by a sight of exquisite beauty, which is rendered still more interesting by the circumstances in which it is seen. From the shadowy vista before him, a sparry concretion is revealed—a column of untarnished whiteness, thirty feet high, and fifteen in diameter. Its innumerable crystals reflect the torchlight in rainbow hues, and it stands a solitary island of lustre amid the surrounding darkness. The cave is supposed to terminate a short distance beyond this, and the explorer wearily retracing his steps, gladly emerges from its damp saline vapours, and the suffocating smoke of the torches, to the refreshing breezes of the upper air. Its length is about three miles; the height and width, usually, (except at the "creeping place,") vary from twenty to one hundred and fifty feet. The principal productions are Epsom salts, saltpetre, nitrate of alumine, plaster of Paris, carbonate and magnesia, sulphate of iron. Epsom salts are seen in a state of effloresence on the walls, but are chiefly obtained from the earth within.

West. Mag.

MISCELLANY.

Enchanted Mountain.—The enchanted mountain is about two miles south of Brasstown, in Tennessee, and is famed for the curiosities on its rocks. There are in several rocks, a number of impressions resembling the tracks of turkeys, bears, horses, and human beings, as visible and perfect as they could be made in snow or sand. The latter are remarkable for having uniformly six toes each, one only excepted, which appears to be the print of a negro's foot. One of these tracks is very large; the length of the foot is sixteen inches, and the distance to the extremities of the outer toes thirteen inches. One of the horse-tracks is of an uncommon size; the transverse and conjugate diameters are eight by ten inches; perhaps the horse which the great warriour rode. What appears most in favour of their being real tracks of the animals they represent, is the circumstance of the horses' feet having slipped several inches and recovered again, and the figures having one direction like the trail of a company on a journey. It is supposed to be the work of art, to commemorate some great battle. Piles of vast stones near the place, said to be the graves of warriours slain in battle, seem to favour this supposition. The texture of these rocks is soft, the part on which the sun had the greatest influence, and which was the most indurated, could easily be cut with a knife, and appeared to be of the nature of pipe-stone. Some of the Cherokees entertain an opinion that it always rains when any person visits the place, as if nature weeps at the recollection of the dreadful catastrophe which those figures are intended to commemorate.

Juvenile Lyceum.

Indian Skeleton.—In New Brunswick, N. J., between South Amboy and Cheesequakes, immediately along the shore of the Raritan bay, are several beds of potter's clay, which are chiefly used for making the kind of pottery called stone ware, although some of the finest of it is used in the manufacture of porcelain and delft ware: from its being so beautifully variegated with red, green, and other colours, it is called peach-blossom clay. Immediately upon the upper surface of the clay, there is a layer of sand, ranging from five inches to twenty feet in thickness. In removing this sand, there have been found at different times, vegetable relicks, such as wood completely carbonized, and in a state of lignite, and some nearly pure charcoal. Amber is found here, which the workmen call *rosum.* It is also found washed up on the beach after an easterly storm.

A few years since, while the workmen were engaged in removing a portion of this sand, they discovered several feet below the surface, the bones of the feet of a man, and upon examination, they found a whole skeleton of an Indian chief. He had been buried in a sitting posture, with his face toward the east, and by his side were found, in a perfect state of preservation, a war-club, three pipes, several heads of arrows made of hornstone, some stone hatchets, and other articles—plainly showing that at one time he was a powerful chief of the Delawares, a tribe of Indians that once owned New Jersey. The articles found with him have carefully been preserved. The war-club is about one inch in thickness, three inches wide at the top, two inches at the handle, and cut out in the middle to the thickness of one inch, and it is about two feet long. On both sides from the top, until about one third the way down, it is regularly carved; no doubt the record of his chieftain authority. The pipes found with him, are cut out of solid stone, (soapstone,) and has also a rude engraving on its surface. The skeleton itself was again decently interred in a wild and secluded spot, by Col. Morgan, there to remain until the last trump shall "wake it with its warning."

But a handful (less than forty) of that once powerful tribe now remain. Like the leaves of autumn they have fallen and been scattered. A few short years, and the name of *Lenni Lelappe* will be forgotten for ever.

Four years since, a chief whose head had numbered seventy winters, was sent by his tribe, from the shores of lake Michigan, to claim from the state of New Jersey, an extinguishment of their last reservation, the fisheries on the Delaware river. And was this aged chief met with sneers and scoffs, and sent away because he was an Indian? No—his demand was heard, the claim of his tribe admitted, and paid from the state treasury. "The last link was broken," which bound him to his native soil, and he left us for ever.

Juvenile Lyceum.

Curious Discovery at Pompeii.—A letter from Naples of the twenty-third of October, published in the Paris National, says: Professor Zahn has this moment returned to town with the intelligence of a most curious discovery that has just been made at Pompeii. A complete table-service in silver has been found. It consists of forty-four plates, a large dish, three small vessels, two spoons, and four forks. The workmanship is admirable, and the articles are all in the highest state of preservation.

Tail of a Gigantick Lizard.—The tail of a gigantick lizard or crocodile, completely converted into stone of the hardest texture, has been found about twenty yards below the surface of the earth, in the shaft of a coalpit which has been recently opened near Chesterfield, in Derbyshire. In about three years time, when other shafts shall have been formed, it is probable there will be discovered the cast of some extraordinary animal of large dimensions, in solid stone, equal to the present fragment, which is so singularly perfect, that it shows every wrinkle and indent of the external muscles and texture of the skin. The head of an immense animal was found a few days since, in a bed of chalk, at the back of Kemp town. It measures three feet one and a half inches in length, and one foot nine inches thick.

Discovery of Marble.—In the island of Tiree, on the west coast of Scotland, an engineer has lately discovered some beautiful blocks of white marble, and an inexhaustible strata of variegated granite, undulating streaks of red, white, and black. At the Ross, in the island of Mull, comparatively pure red and white granite occurs in vast abundance. This is by far the most beautiful variety in the country, or perhaps in the world. One of the many blocks forming the *debris* of an adjoining mountain, was found to measure twelve cubick feet to the tun—no less than one hundred and four square tuns of workable granite

USEFUL KNOWLEDGE.

Tapioca-Pudding.—One quart cold milk; six tablespoonfuls of tapioca; set on the fire, and stir till it boils; add one ounce and half powdered loaf sugar, and set it on the trivet, and let it boil a quarter of an hour, stirring occasionally; take it off and turn it into a pan or basin, and stir in *immediately* one ounce fresh butter, and three eggs well beaten; pour it into a buttered pie or pudding dish, and bake gently one hour. This pudding may be *boiled* for one hour and a half, adding two eggs. In either case it is better to prepare the tapioca early enough for it to be quite cold before baking or boiling, and if boiled, it must stand a full quarter of an hour after it is taken up, or it will not turn out whole. It is a very delicate-looking pudding when boiled and ornamented with red gelly.

Apple-Gelly.—Take John-apples, codlings, or nonsuch, pare and cut them in slices, put them into a deep stewpan, with as much water as will cover them, boil them gently till they will mash, and then, strain them through a gelly-bag; to every pint of liquor add one pound of loaf-sugar; boil it till it comes to the top for ten minutes, then pour it into a mould with or without sliced lemon-peel. A quart only should be done at a time; the apples should be full grown, but not too ripe. This gelly will keep and make a pretty dish at any time.

Red Currant-Gelly.—Strip the currants, put them in jars or pans, and bake them; strain off the juice through a sieve; having loaf sugar pounded and dried, in the proportion of one pound to one pint of juice, set the juice over the fire, and when *boiling*, throw in the sugar gradually, stiring the whole time; this must be done quickly, for by the time all the sugar is stirred in the juice will be ready to gelly, and if left too long over the fire, the gelly will become candied. Pour into small-sized jars. By this method, the gelly will be perfectly clear without skimming, which saves waste and trouble.

Raspberry Juice.—Bake or boil the fruit, sufficiently to procure the juice; then boil the juice with loaf sugar, in the proportion of half a pound to a pint so as to ensure its keeping, but not gellying. When nearly cold, bottle and cork securely. This is very useful in making creams.

To Bottle Red Currants.—Cut them carefully from the stalks, so that the skins may not be broken into clean and perfectly dry quart bottles, adding gradually, as you fill, two ounces of finely-sifted loaf sugar; this may be done with a teaspoon, so that the sugar may fall on each layer of currants. Fill the bottles, and rosin the corks; and the best plan of keeping them, as well as bottled gooseberries, is in a bottle-rack, with the necks downward, as they are thus secured from coming in contact with damp walls. It succeeds much better than burying them in the earth.

To Bottle Green Gooseberries.—There are several ways of boiling green gooseberries, but the following appear to be best. Having filled wide-mouthed bottles with *hairy* gooseberries, place them up to the neck in a copper of cold water; let the water boil until the fruit begins to shrink, or look scalded; then remove the *fire* from under the copper, and let the bottles remain until the water becomes cold; then take them out, and fill them up with cold spring water, which *has been boiled*, and pour a few drops of salad oil on the top of the water before boiling instead of afterward, and cork, rosin, and place in the bottle-rack, as directed for currants.

Sponge Cake.—Dissolve three quarters of a pound of lump sugar in half a pint of water, simmer it over a slow fire until it is quite clear, then pour it into a bowl, adding the grated rind of a lemon, and keep stirring it until it is cold. Then take the yolks of eight eggs and the whites of two; beat them for a quarter of an hour; mix the eggs and sirup together, and beat the mixture half an hour longer. Just before you put it into the oven, stir in by degrees half a pound of flour. One hour and a quarter will bake it.

Lemon Cheese-cake.—One pound of lump sugar broken into pieces; six eggs, leaving out two whites; the juice of three lemons, the rinds of two grated, and a quarter of a pound of butter. Put all these ingredients into a pan, stirring them gently over a slow fire, until the mixture becomes thick and looks like honey. This mixture will keep for twelve months, if put in a jar, tied down with a paper, and kept in a dry cool place.

The Bakewell Pudding.—Having covered a dish with thin puff paste, put a layer of any kind of jam about half an inch thick, then take the yolks of eight eggs and two whites, half a pound of butter melted, and almond flavour to your taste; beat well together; pour the mixture into the dish an inch thick, and bake it about an hour in a moderate oven.

Good plain Gingerbread.—Three quarters of a pound of flour; a quarter of a pound of butter; a quarter of a pound of treacle; a tablespoonful of cream, and ginger to the taste. Mix all together into a stiff paste, roll it out thin and cut into small cakes: a little candied orange and lemon peel is a great improvement.

India Curry Powder.—One ounce and a half mustard seed; four ounces coriander seed; four ounces and a half turmerick root; three ounces black pepper; one ounce and a half cayenne pepper; one ounce cardamom seed; half an ounce Jamaica ginger: half ditto cinnamon; half ditto cloves; half ditto mace. To be finely-powdered, well-mixed and bottled.

Rice-Gelly.—Half a pound Carolina rice; three pints and a half of water. Put it on cold; *boil* it one hour. Beat it through a sieve; when cold it will be a firm gelly, which, when warmed up in milk, is a nutritious and very agreeable food. Add one pint of milk to the pulp which remains in the sieve, boil it for a short time, stirring constantly to prevent burning; then strain as before, and if eaten at once it resembles thick milk; if allowed to get cold, it becomes gelly as the former.

LITERARY NOTICES.

The Structure of the Eye, with Reference to Natural Theology. By W. C. Wallace, Oculist to the New York Institution for the Blind, &c., &c. New York: Wiley & Long. In the last number of the Family Magazine, we gave a brief extract from this popular and interesting treatise, which we cordially recommend to our readers, as affording an excellent, and at the same time, a plain and intelligible description of this important organ of the human economy. The author of it, Dr. Wallace, is well acquainted with this subject, and has pursued his investigations through the different classes of the animal kingdom.

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Picket's Course of School-Books. Cincinnati: C. P. Barnes. We have examined with peculiar pleasure a new edition of school-books by the Messrs. Picket. These authors are strongly opposed to idleness, carelessness, or superficial modes of study; it is their constant aim to improve the minds of their pupils and strengthen them in the principles of virtue and religion, and to establish them in regular and systematick habits of study. For the attainment of these objects, there is a peculiar adaptation in these works. The primer, spelling-book, and readers, two and three, are extremely valuable. Nor must we forget the Introduction to the Expositor; it teaches the English language analytically, by showing the pupil the root of each word, from whatever language it may be derived, and then gives its true meaning, and various shades of meaning, in consequence of its union with a great variety of prefixes, and suffixes, and thus communicates an accurate, and critical knowledge of the English language.

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The Western Literary Messenger. We are always glad to welcome this monthly visiter, which is one of the most interesting magazines issued in this country. The articles by Mann Butler, Esq. are alone worth the price of the volume, and throw much light upon obscure topicks of Western history.

It is published on the first of every month at Louisville, Ky., by the Western Unitarian Association, and in Boston by James Monroe & Co. Each number contains sixty pages, price three dollars per annum payable in advance.

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The Petit Courier des Dames, (New York: Charles de Behr,) improves in interest, and gains upon the favour of the publick. The plates are extremely well executed, and the original department and selected miscellany are handsomely sustained.

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We are happy to learn that the circulation of the *Southern Literary Journal* is rapidly increasing at the North and West. This magazine, which is very ably conducted by Mr. Whitaker, numbers among its contributors, many of the able men in the South, while occasionally a Northern correspondent lends his aid. We commend it to our readers.

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The New York Knickerbocker Magazine continues to sustain its well-merited reputation, and its talented editors seem determined to spare no pains in catering for their long list of four thousand subscribers. The work in addition to its literary claims, is embellished occasionally with engravings, although none are promised in the prospectus. It deserves a large subscription list.

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A Home Tour through the Manufacturing Districts of England in the Summer of 1835, by Sir George Head, author of "Forest Scenes, and Incidents in the Wilds of North America." New York: Harper & Brothers, 1837. The author of this unpretending volume has contrived to make a very amusing, and interesting work, although travelling upon ground, which must, necessarily, be very familiar to many of his transatlantick readers. To us, however, it has the charm of novelty, for although we have passed through many of the spots described by Sir George Head, yet it is extremely difficult for a stranger to ascertain the sights truly worth seeing. We commend this book particulaly to those of our readers who propose visiting England, assuring them that many of the places mentioned in this work, as deserving of a visit, are unnoticed in any of the guide books, and if they are so unfortunate as to be detained on their route at Liverpool, or Manchester, a reference to the Home Tour will enable them to spend pleasurably many an hour, which might otherwise be one of *ennui*.

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PHILADELPHIA truly deserves to be called the mother of weekly family papers, and every month seems to add one to their number. *The Philadelphia Saturday Courier* is well known to our readers as being devoted to literature, science, the arts, mechanicks, agriculture, &c., &c. This periodical is very ably conducted; it has a large circulation, which is daily increasing. The different works of Marrvatt, form an attractive feature in the publication.

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The American Weekly Messenger, which has recently commenced its career is also a very amusing weekly journal, and, in addition to its literary attractions, is embellished with numerous wood engravings, many of which are creditable specimens of art. This paper is issued every Wednesday, on a large and handsomely printed sheet. Price two dollars per annum.

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We alluded in our last number, to the publication of a new work by the Messrs. Harper, entitled, "The Chinese," by John Francis Davis, Esq. Our leisure had not allowed us to examine this work as fully as we wished; now, however, we are satisfied that it is the most valuable work on China, which has yet appeared, and is well calculated to make the reading publick acquainted with the manners, habits, customs, &c., of that very curious people.

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The Harpers have been compelled to issue a second edition of the memoirs of Aaron Burr, which has excited a great sensation, particularly in the West, the scene of Burr's pretended conspiracy against the United States. The second volume, in which Mr. Davis promises to draw aside the curtain which has so long shielded the prominent actors in the presidential contest, which terminated in the choice of Jefferson, is impatiently expected. Mr. Davis states that, in it, the clearest evidence will be presented, to show that Mr. Jefferson entered into terms and conditions with the federal party, or some of their leaders. It will probably be issued in the course of two months.

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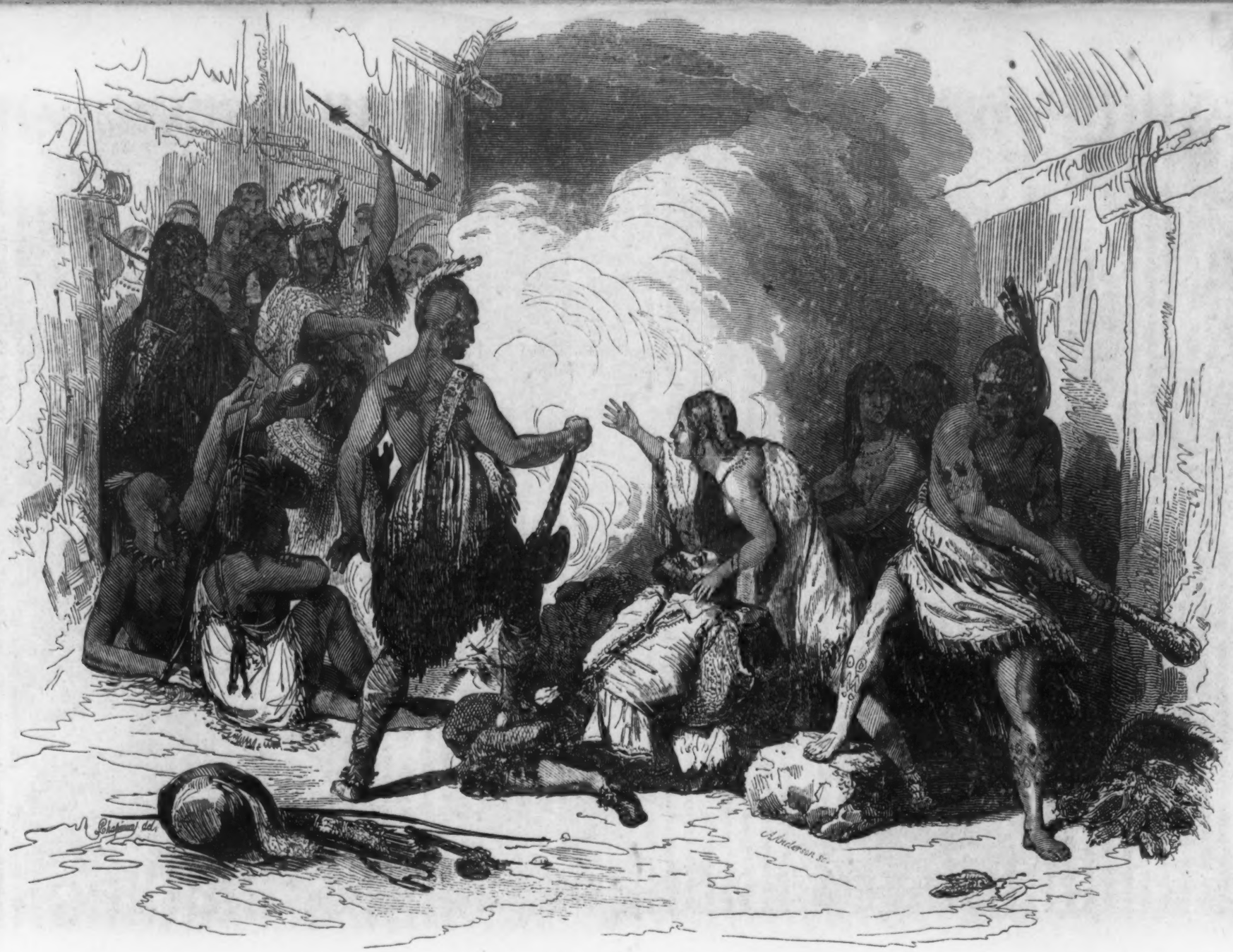
We have stated in former numbers, the principal aim of the publication of Harpers' Classical Library. These gentlemen have just added two extremely valuable works to the series. The first, Smith's Thucidydes, has long been celebrated as by far the best translation of that prince of Greek historians. This has been followed by Baker's translation of the Latin historian Livy, the whole of which is embraced in the five volumes recently issued by the Messrs. Harper. We are happy to see that the high reputation of the classical series is so well sustained, and that none but the best translations of the very first authors are comprised in it.



POCHAHONTAS SAVING THE LIFE OF CAPTAIN SMITH.

THE RESCUE OF CAPTAIN JOHN SMITH, BY POCAHONTAS.

THE subject selected for the principal illustration in the present number of the Family Magazine, is the rescue of Capt. John Smith, by Pocahontas.

In the "Trve Travels, Adventvres, and Observations of Captaine Iohn Smith," we find the following narrative of this capture and rescue :—*

"The savages having drawn from *George Cassen* whither *Capt. Smith* was gone, prosecuting that opportunity, they followed him with three hundred bowmen, conducted by the king of *Pamaunkee*, who in divisions searching the turnings of the river, found *Robinson* and *Emry* by the fireside, those they shot full of arrows and slew. Then finding the Captain, as is said, that used the savage that was his guide as his shield (three of them being slain and divers others so galled) all the rest would not come near him. Thinking thus to have returned to his boat, regarding them, as he marched, more than his way, slipped up to the middle in an oasie creek and his savage with him, yet durst they not come to him till being nearly dead with cold, he threw away his arms. Then according to their composition they drew him forth and led him to the fire, where his men were slain. Diligently they chafed his benumbed limbs. He demanding for their captain, they shewed him *Opechankanough*, king of *Pamaunkee*, to whom he gave a round ivory compass-dial. Much they marvelled at the playing of the fly and needle, which they could see so plainly, and yet not touch it, because of the glass that covered them. But when he demonstrated by the globe-like jewel, the roundness of the earth, and skies, the sphere of the sun, moon, and stars, and how the sun did chase the night round about the world continually; the greatness of the land and sea, the diversity of nations, variety of complexions, and how we were to them Antipodes, and many other such like matters, they all stood as amazed with admiration. Notwithstanding, within an hour after they tied him to a tree, and as many as could stand about him prepared to shoot him, but the king holding up the compass in his hand, they all laid down their bows and arrows, and in a triumphant manner led him to *Orapaks*, where he was after their manner kindly feasted, and well used.

Their order in conducting him was thus: drawing themselves all in file, the king in the midst had all their pieces and swords borne before him. Captain Smith was led after him by three great savages, holding him fast by each arm, and on each side went six in file with their arrows knocked. But arriving at the town (which was but only thirty or forty hunting-houses made of mats, which they remove as they please, as we our tents) all the women and children staring to behold him, the soldiers first all in file performed the form of a *Bissom* so well as could be, and on each flank, officers as sergeants to see them keep their orders. A good time they continued this exercise, and then cast themselves in a ring, dancing in such several postures, and singing and yelling out such hellish notes and screeches, being strangely painted, every one his quiver of arrows, and at his back a club, on his arm a fox or an otter's skin, or some such matter for his vambrace, their heads and shoulders painted red, with oil and *pocones* mingled together, which scarlet-like colour made an exceeding handsome show, his bow in his hand, and the skin of a bird with her wings abroad dried, tied on his head, a piece of copper, a white shell, a long feather, with a small rattle growing at the tails of their snakes tied to it, or some such like toy. All this while Smith and the king stood in the midst guarded, as before is said, and after three dances they all departed. Smith they conducted to a long house, where thirty or forty tall fellows did guard him, and ere long more bread and venison was brought him than would have served twenty men, I think his stomach at that time was not very good; what he left they put in baskets and tied over his head. About midnight they set the meat again before him, all this time not one of them would eat a bit with him, till the next morning they brought him as much more, and then did they eat all the old, and reserved the new as they had done the other, which made him think they would fat him to eat him. Yet in this desperate estate to defend him from the cold, one *Maocassater* brought him his gown, in requital of some beads and toys Smith had given him on his first arrival in Virginia.

Two days after, a man would have slain him (but that the guard prevented it) for the death of his son, to whom they conducted him to recover the poor man then breathing his last. Smith told them that at Jamestown he had a water would do it, if they would let him fetch it, but they would not permit that, but made all the preparations they could to assault Jamestown, craving his advice, and for recompense he should have life, liberty, land, and women. In part of a table-book he wrote his mind to them at the fort, what was intended, how they should follow that direction to affright the messengers, and without fail send him such things as he wrote for. And an inventory with them. The difficulty and danger, he told the savages, of the mines, great guns, and other engines exceedingly affrighted them, yet according to his request they went to Jamestown, in as bitter weather as could be of frost and snow, and within three days returned with an answer.

But when they came to Jamestown, seeing men sally out as he had told them they would, they fled; yet in the night they came again to the same place where he had told them they should receive an answer, and such things as he had promised them, which they found accordingly, and with which they returned with no small expedition, to the wonder of them all that heard it, that he could either divine, or the paper could speak; then they led him to the *Youthtanunds*, the *Mattapanients*, the *Payankatanks*, the *Nantaughtacunds*, and *Onawmanients* upon the rivers of *Rappahannock*, and *Patawomek*, over all those rivers, and back again by divers other several nations, to the king's habitation at *Pamaunkee*, where they entertained him with most strange and fearful conjurations :—

> As if near led to hell,
> Among the Devils to dwell.

Not long after, early in a morning, a great fire was made in a long house, and a mat spread on the one side, as on the other; on the one they caused him to sit, and all the guard went out of the house, and presently came skipping in a great grim fellow, all

* In quoting from this work, the orthography of the narrative has been changed, but the style is preserved.

painted over with coal, mingled with oil; and many snakes and weasels' skins stuffed with moss, and all their tails tied together, so as they met on the crown of his head in a tassel; and round about the tassel was as a coronet of feathers, the skins hanging round about his head, back, and shoulders, and in a manner covered his face; with a hellish voice and a rattle in his hand. With most strange gestures and passions he began his invocation, and environed the fire with a circle of meal; which done, three more such like devils came rushing in with the like antique tricks, painted half black, half red: but all their eyes were painted white, and some red strokes like mustaches, along their cheeks: round about him those fiends danced a pretty while, and then came in three more as ugly as the rest; with red eyes, and white strokes over their black faces, at last they all sat down right against him; three of them on the one hand of the chief priest, and three on the other. Then all with their rattles began a song, which ended, the chief priest laid down five wheat corns, then straining his arms and hands with such violence that he sweat, and his veins swelled, he began a short oration: at the conclusion they all gave a short groan; and then laid down three grains more. After that, began their song again, and then another oration, ever laying down as many corns as before, till they had twice encircled the fire; that done, they took a bunch of little sticks prepared for that purpose, continuing still their devotion, and at the end of every song and oration, they laid down a stick betwixt the divisions of corn. Till night, neither he nor they did either eat or drink, and then they feasted merrily, with the best provisions they could make. Three days they used this ceremony; the meaning whereof they told him, was to know if he intended them well or no. The circle of meal signified their country, the circles of corn the bounds of the sea; and the sticks his country. They imagined the world to be flat and round, like a trencher, and they in the midst. After this they brought him a bag of gunpowder, which they carefully preserved till the next spring, to plant as they did their corn: because they would be acquainted with the nature of that seed. *Opitchapam*, the king's brother, invited him to his house, where, with as many platters of bread, fowl, and wild beasts, as did environ him, he bid him welcome; but not any of them would eat a bit with him, but put up all the remainder in baskets. At his return to *Opechancanough's*, all the king's women, and their children, flocked about him for their parts, as a due by custom, to be merry with such fragments.

> But his waking mind in hideous dreams did oft see wondrous shapes
> Of bodies strange, and huge in growth, and of stupendous makes.

At last they brought him to *Meronocomoco*, where was *Powhatan* their emperour. Here more than two hundred of those grim courtiers stood wondering at him, as he had been a monster; till Powhatan and his train had put themselves in their greatest braveries. Before a fire upon a seat like a bedstead, he sat covered with a great robe, made of *Rackoon* skins, and all the tails hanging by. On either hand did sit a young wench of sixteen or eighteen years, and along on each side the house, two rows of men, and behind them as many women, with all their heads and shoulders painted red; many of their heads bedecked with the white down of birds; but every one with something: and a great chain of white beads about their necks. At his entrance before the king, all the people gave a great shout. The queen of *Appamatuck* was appointed to bring him water to wash his hands, and another brought him a bunch of feathers, instead of a towel to dry them: having feasted him after their best barbarous manner they could, a long consultation was held, but the conclusion was, two great stones were brought before Powhatan: then as many as could laid hands on him, dragged him to them, and thereon laid his head, and being ready with their clubs, to beat out his brains, Pocahontas, the king's dearest daughter, when no entreaty could prevail, got his head in her arms, and laid her own upon his to save him from death: whereat the emperour was contented he should live to make him hatchets, and her bells, beads, and copper; for they thought him as well of all occupations as themselves. For the king himself will make his own robes, shoes, bows, arrows, pots; plant, hunt, or do any thing, so well as the rest.

> They say he bore a pleasant show,
> But sure his heart was sad,
> For who can pleasant be, and rest,
> That lives in fear and dread;
> And having life suspected, doth
> It still suspected lead."

LEGEND OF BRADY'S HILL.

Samuel Brady, the hero of the following adventure, was over six feet in height, with light-blue eyes, fair skin, and dark hair: he was remarkably straight and athletick, a bold and vigorous backwoodsman, inured to all the toils and hardships of a frontier life, and had become very obnoxious to the Indians, from the numerous successful attacks on their war-parties, and from shooting them in his hunting excursions, whenever they crossed his path, or came within reach of his rifle; for he was personly engaged in more hazardous contests with the savages, than any other man west of the mountains, excepting Daniel Boone. He was in fact an "Indian hater," as many of the borderers were. This class of men appear to have been more numerous in this region, than in any other portion of the frontiers, and this doubtless arose from the slaughter at Braddock's defeat, and the numerous murders and attacks on defenceless families that for many years followed that disaster. Brady was also a very successful trapper and hunter, and took more beavers than any of the Indians themselves. In one of his adventurous excursions, to the waters of the Beaver river, or Mahoning, which in early days so abounded with the animals of this species, that it took its name from the fact, it so happened that the Indians surprised him in his camp and took him prisoner. To have shot or tomahawked him on the spot would have been but a small gratification of satiating their revenge by burning him at a slow fire, in the presence of all the Indians of their village. He was therefore taken alive to their encampment, on the west bank of the Beaver river, about a mile and a half from its mouth.

After the usual exultations and rejoicings at the capture of a noted enemy, and causing him to run the gauntlet, a fire was prepared, near which Brady was placed, after being stripped naked, and with his arms

unbound. Previously to tying him to the stake, a large circle was formed around him, consisting of Indian men, women and children, dancing and yelling and uttering all manner of threats and abuse that their small knowledge of the English language could afford. The prisoner looked on these preparations of death, and on his savage foes, with a firm countenance and a steady eye, meeting all their threats with a truly savage fortitude. In the midst of their dancing and rejoicing, a squaw of one of their chiefs came near him with a child in her arms. Quick as thought, and with intuitive presence, he snatched it from her and threw it into the midst of the flames. Horrourstruck at the sudden outrage, the Indians simultaneously rushed to rescue the infant from the fire. In the midst of this confusion, Brady darted from the circle, overturning all that came in his way, and rushed into the adjacent thickets with the Indians at his heels. He ascended the steep side of the present hill, amidst a shower of bullets, and darting down the opposite declivity, secreted himself in the deep ravine and laurel thickets that abound for several miles to the west of it. His knowledge of the country and wonderful activity, enabled him to elude his enemies, and reach the settlements on the south of the Ohio river, which he crossed by swimming. The hill near whose base this adventure is said to have happened, still goes by his name, and the incident is often referred to by the traveller, as the coach is slowly dragged up its side.

Brady's Leap.—Captain Brady seems to have been as much the Daniel Boone of the northeast part of the valley of the Ohio, as the other was of the southwest, and the country is equally full of traditionary legends of his hardy adventures and hairbreadth escapes, although he has lacked a Flint to chronicle his fame, and transmit it to posterity in the glowing and beautiful language of that distinguished annalist of the West. From undoubted authority, it seems the following incident actually transpired in this vicinity:—

Brady's residence was on Chartier's creek, on the south side of the Ohio, as before noted; and being a man of Herculean strength, courage, and activity, he was generally selected as the leader of the hardy borderers in all their incursions into the Indian territory north of the river. On this occasion, which was about the year 1780, a large party of warriours from the falls of the Cuyahoga, and the adjacent country, had made an inroad on the south side of the Ohio river, in the lower part of what is now Washington county, but which was then known as the settlement of "Catfish camp," after an old Indian of that name, who lived there when the whites first came into the country, on the Monongahela river. This party had murdered several families, and with the plunder had recrossed the Ohio before effectual pursuit could be made. By Brady, a party was directly summoned, of his chosen followers, who hastened on after them; but the Indians having one or two days the start, he could not overtake them in time to arrest their return to their villages. Near the spot where the town of Ravena now stands, the Indians separated into two parties, one of which went to the north, and the other west, to the falls of the Cuyahoga. Brady's men also divided; a part pursued the northern trail, and a part went with their commander to the Indian village, lying on the river in the present township of Northampton in Portage county. * * * * *

As he approached the chasm, Brady, knowing that life or death was in the effort, concentrated his mighty powers and leaped the stream at a single bound. It so happened that, in the opposite cliff, the leap was favoured by a low place, into which he dropped, and grasping the bushes, he thus helped himself to ascend to the top of the cliff. The Indians, for a few moment, were lost in wonder and admiration, and before they had recovered their recollection, he was halfway up the side of the opposite hill, but still within reach of their rifles. They could easily have shot him any moment before, but being bent on taking him alive, for torture, and to glut their long delayed revenge, they forbore the use of the rifle; but now seeing him likely to escape, they all fired upon him; one bullet wounded him severely, in the hip, but not so badly as to prevent his progress. The Indians having to make a considerable circuit before they could cross the stream, Brady advanced a good distance ahead. His limb was growing stiff from the wound and as the Indians gained on him, he made for the pond which bears his name, and plunged in, swam under water a considerable distance, and came up under the trunk of a large oak, which had fallen into the pond. This, although leaving only a small breathing place to support life, still completely sheltered him from their sight. The Indians tracing him by the blood to the water, made diligent search all round the pond, but finding no signs of his exit, finally came to the conclusion that he had sunk and was drowned. As they were at one time standing on the very tree beneath which he was concealed, Brady understanding their language was very glad to hear the result of their deliberations, and after they had gone, weary, lame, and hungry, he made good his retreat to his own home. His followers, also, returned in safety. The chasm across which he leaped is in sight of the bridge where we crossed the Cuyahoga and is known in all that region, by the name of "Brady's Leap."

Silliman's Journal.

THE PITCHER-PLANT.

THERE is not, perhaps, among the numerous examples that occur of the provident economy of Nature in the vegetable part of the creation, a more remarkable instance of contrivance adapted to circumstances, or of means suited to the end, than that which is displayed in this wonderful plant, the *Nepenthes distillatoria*, or pitcher-plant.

Being the inhabitant of a tropical climate, and found on the most stony and arid situations, Nature has furnished it with the means of an ample supply of moisture, without which it would wither and perish. To the footstalk of each leaf, and near the base, is attached a small bag, shaped like a pitcher, of the same consistence and colour of the leaf in the early stage of its growth, but changing with age to a reddish-purple; it is girt round with an oblique band or hoop, and covered with a lid neatly fitted, and moveable on a kind of hinge or strong fibre, which, passing over the handle, contracts the vessel with the leaf. By the construction of this fibre the

[The Pitcher-plant.]

lid is drawn open whenever the weather is showery or dews fall, which would appear to be just the contrary of what usually happens in Nature, though the contraction is probably occasioned by the hot and dry atmosphere, and the expansion of the fibre does not take place till the moisture has fallen and saturated the pitcher. When this is the case the cover falls down and closes so firmly as to prevent any evaporation from taking place.

The water being gradually absorbed through the handle into the footstalk, gives vigour to the leaf and sustenance to the plant. As soon as the pitchers are exhausted, the lids again open to admit whatever moisture may fall, and when the plant has produced its seed and the dry season sets in, it withers, and all the covers of the pitchers stand open.

Can any thing more than the mechanism of this singular production, evince the Divine benevolence.

AMERICAN CAVERNS.

WYER'S CAVE, STAUNTON, VA.

[Extract from a Journal kept on a Tour from Charleston, South Carolina to New York.]

We awoke refreshed after the fatigue of our visit to the Natural bridge, and ready to continue our pilgrimage to the shrine of all-wonderful nature. Our drive to Staunton was without incident, and early the next day, we took a comfortable carriage for the cavern ten miles from that place. Nothing on the way indicated the existence of such a place, and when we reached the little inn kept by the guide, I could have found it in my heart to doubt. We made our toilet for the occasion, and proceeded along the side of a steep hill, climbing nearly to the top, where a bench stands in the shade, before a door in the rock. We sat down to become perfectly cool before entering, while the guide unlocked the door, produced candles and matches, and made his preparations, and here our party completed their equipments; M. and myself laid aside our bonnets, and Mr. S. gallantly made turbans for our heads of coloured handkerchiefs. R. tied his handkerchief over his shoulders in the fashion of a cloak. The guide gave each a candlestick formed of a curved sheet of tin to protect the eyes from the light. We surveyed ourselves in the polished mirrors they afforded, and then entered one by one. I cannot follow our course, for we went up and down, through a narrow, slippery passage, our overshoes often adhering to the clay of the floor. We passed through openings just large enough to admit us stooping to the very earth, and then stood in halls more than fifty feet high. Now we descended on narrow steep ladders, and then climbed piles of rocks, or made a circuit to avoid falling into some deep pit. A map of the cave resembles somewhat the chain of lakes on our Northern boundary, repeated several times. But let me try to systematize. The first object that attracted our attention was the wall of the passage set thick with rugged stalactites. It was a close heavy fringe, covering roof and sides like long icicles, and here let me remark that these formations have not the brilliancy usually ascribed to them except when examined closely with candles. When the light is held behind them they are seen to be transparent and of a rich flame colour. As we passed on, we found the shapes and dispositions of these formations infinitely varied—sometimes they hung in long pointed leaves, depending to the floor, and sometimes in graceful folds like drapery. Our guide conducted us into an opening called the musick room, and striking the columns drew from one spot the sound of a heavy drum, from another, that of a tambarine, and from some small tubes an excellent imitation of the Pandean pipes. Farther on, he struck the rocks with a staff and the whole apartment vibrated under the heavy gong; the sound was so deafening that we held our hands over our ears for pain. We next entered what is called the ball-room, from having been occasionally used for that purpose; it is wide and high, and the dim light of our scattered candles made it seem vast. As we passed out of it and groped our way onward, sweet distant sounds seemed to glide before us, sometimes distinct, and again seemingly lost in some deep cavern beneath or floating through the arches above us. It was our guide's companion, who had preceded us with a flute. We descended a natural stair called Jacob's ladder; this and many other passes are narrow and difficult, and all who attempt them must depend entirely on their own exertions and strength, as no one can assist another with safety. Here in odd conjunction with the leaning tower of Pisa, and Cleopatra's needle, are Jefferson's hall, Congress hall, and Washington hall. This last apartment filled me with awe from the vastness which belonged to it in that imperfect light. It rises far above the rays of the candles, and is lost in black obscurity. The candle of the guide at the opposite end of it, seemed to us a mere point of light. Near the centre stands a colossal stalagmite, so like

a statue wrapped in drapery, that one can hardly dispel the illusion; this is Washington at a distance; approach it, and it becomes a shapeless mass of stone, dripping muddy water. Lady Washington's apartment boasts a mirror, fringed hangings, and countless folds of drapery. The guide placed his light behind these stone curtains, and showed us as he said "not only a hem but a border." The tower of Babel is a large circular rock, with a fluted surface, looking like columns bound together. Solomon's throne is a lofty chair with steps and a cushion, though I must confess it needs something from the fancy. Objects of interest are found at every step—figures of animals, birds, trees, human features, and even profiles stand as memorials of nature's freakish moods, and the grotesque shapes in which no resemblance to particular things may be traced, are found hanging and standing and lying about in wild gracefulness, like the tracery of frost executed in stone. We had a delicious draught of cool water which falls in drops from the rock; some thoughtful mortal has placed beneath it a vessel fashioned in the world above, that wearied pilgrims may be refreshed. But the darkness, the stillness, and the echo that every sound calls forth, in this subterraneous world, were to us most striking; they gave the scene its sublimity, though the impression is strangely at variance with the minute examination of perpetually-changing objects, and the frequent discovery of ludicrous caricatures. Our guide awakened the echoes by a song, to which his fine voice gave full effect, and Mr. S. stunned us by firing the pistol. *The* pistol! if this companion of our journey has not before received its due notice, let it be here recorded that its one effort was not to die away *in sound*. We were tired enough when our guide announced the end; but all our steps were to be retraced before we could rest. Our candles were burned low, and the fearful thought of being left in darkness in such a place suggested itself, not as a thing to be apprehended, for we knew that our guide had provided against such misfortune, but as the climax of all possible horrours. To increase the effect, we were listening to a tale from the guide, of a foreigner to whom it once happened, and whose guide found the way out, after hours of peril. At last, we saw gleams of pale light beginning to contend with the red glare. The effect of suddenly emerging into daylight, after three hours in the cave was strange enough, and resuming the temperature of the world without was as uncomfortable as singular. Worn out as we were, we could not avoid laughing at our plight, covered as we stood with a plaster of red mud over our strange attire.

Southern Rose.

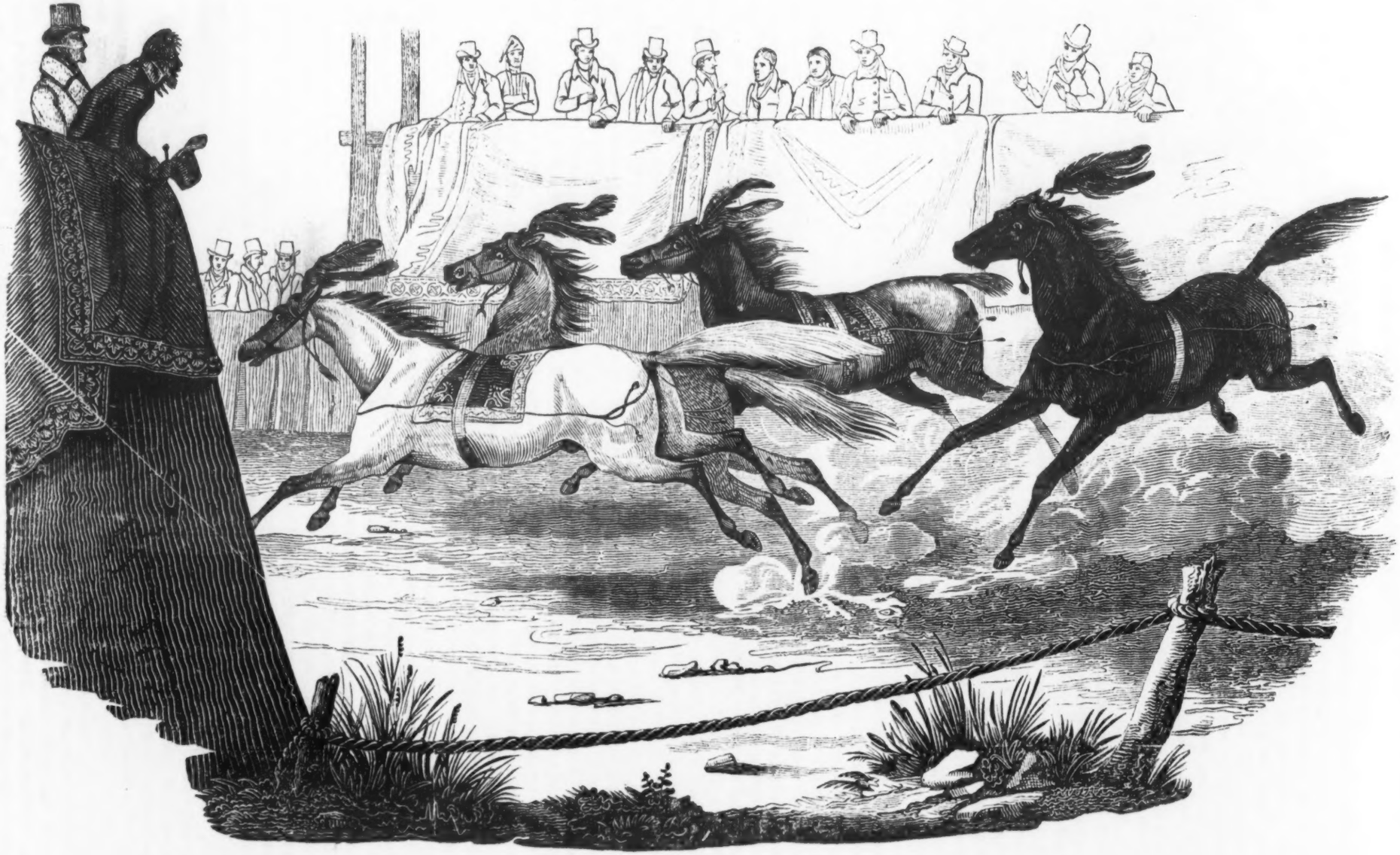
THE CARNIVAL AT ROME.

The same views which led men to propitiate the higher invisible powers by gifts, sacrifices, and purifications, also introduced fasts, abstinence from pleasure, and penances. By fasts is meant an abstinence from the usual means of nourishment, in order to mortify the appetites, and thereby to propitiate the Deity. In every nation of importance, customs of this kind are found. Their historical origin is in the religious customs of the East, where the priests were originally the physicians of the people, and prescribed these fasts as a part of the regimen necessary in this warm region, as well as from religious views. The following description of the carnival at Rome, is from an eyewitness :—

For a long time previous, preparations were going on for this famous festival—masks were displayed at every shop, and masquerade-dresses of every form and fashion, adorned the heads of the giddy throng, for many days before its commencement. On Friday, men mounted on horses in showy costume, paraded the streets, with flags of gold and silver tissue, velvet, and rich silks, the involuntary donation of the despised Jews, who are also compelled to defray the expenses of the races. It is said that in former times they were compelled to race themselves for the amusement of their more favoured fellow-beings, but are now indulged with the privilege of substituting horses.

On Saturday, at about two o'clock, the great bell of the capitol announced the commencement of the sport; the Corso was already filled with coaches, and persons on foot of every nation under the sun, but the masks were few. Some ceremonies I understood went on at the capitol, which I did not witness, in which a deputation of the Jews, formally petitioned the governour of the city, for permision to remain in it another year, which he grants on condition of their paying the costs of the races, &c. The military paraded the Corso with much display, and soon after, the governour and senator (Rome has but one now) swept through it in a pompous procession of gilded coaches, decked out in all the frippery of bad taste, and glitter of real gold and brass. It added, however, as much to the show as harlequins' many-coloured jackets, or Pulcinello's long nose and pot of macaroni. These ended, the fun and merriment commenced; showers of sugar-nuts (made for the purpose of plaster, and an apology for sugar) were exchanged by those in coaches as they passed—a general pelting from the windows, and those on foot, presented a scene of confusion and childish gayety, that, as absurd as it appeared, roused up the dullest spirit to the sport, and, filling my pockets, I went to work as manfully as the silliest among them. The windows and balconies were hung with rich draperies of scarlet and crimson silk and velvet, which waving in a gentle breeze, beneath a cloudless sky, mingled with rich dresses, smiling and often lovely faces beaming with pleasure—the loud laugh, the shout of joy, and the sprightly movements of the crowd, combined to present a scene beyond description. The amusements of the day concluded with the race. For this purpose, part of the Piazza del Popolo (a view of which is seen on page 369) was fitted up as a starting-place, and to afford places for those who desired to witness the most animated scene of all, when the animals are brought forth—a privilege that a paul procured for any one.

At the sound of the trumpet, fifteen or sixteen ponies made their appearance, with grooms at their heads dressed in all the extravagance of finery peculiar to the Roman peasants, who with difficulty could arrange the animals against a rope stretched across the street. At a signal given, it dropped and away they went like lightning, dashing up the Corso as if a thousand furies were at their heels. Leaden balls, suspended by strings and filled with needles,



ROMAN HORSE-RACE.

[Piazza del Popolo.]

lashed their sides, and the rattle of sheets of tinsel, and fire-crackers, let off at the moment of starting, and the shouts of the crowd, as they closed in behind them, spurred them forward, with the swiftness of the wind. They ran to the end of the street, about a mile, and were then stopped, by a large canvass, extended across the way, with the exception of three, who did not seem to relish the joke, and using their heels in the wrong way, were, with difficulty secured. More than one fell exhausted with fright and exertion; others bolted in spite of shouts and soldiers, and not half the number reached the goal. The races were repeated every day of the carnival, about sunset, and with little variation.

On Tuesday, there was a masquerade-ball at one of the theatres. For this purpose, the pit was covered over, and the whole establishment thrown open. One is not compelled to wear a mask, or go in costume. If they please, they may be mere lookers-on, or join in the revelry, to their heart's content, and soon, in spite of prejudices, and the consciousness of its absurdity, they are drawn into the whirl. Some of the costumes, were badly put together, made up of pasteboards, and glazed muslin, and would have done discredit to the wardrobe of a strolling mountebank; many were beautiful, in good taste, and costly. There were harlequins cutting their odd tricks, clown playing off their buffooneries, and columbines their witcheries; the Roman emperour strutted arm-in-arm, with the sprightly trasteverina, or stately Albaneza; the long-bearded, turbaned Turk, with his face of gravity; the fop of fifty years ago, and the *exquisite* of the present day—the mad poet, the quack doctor, with a remedy for every disease, in the shape of an instrument, of most unquestionable form and character. There were scores of fag-end nobility, caricatured to perfection—in short, a little of every thing that the world is made of, travestied, except the priesthood—it is the only forbidden ground.

There were many in costume, though not in masks. The Hungarian mountain girl, and the lovely young Greek, who, that night wore their national costume, will long be remembered—by one at least upon whose arm they leaned.

Paul Pry was there, running his nose into every one's business—I came upon the busy-body, sipping an ice with his satanick majesty, in a corner, who by-the-by, was the best mask in the assembly—a person of exquisite form in a suit of black, with red claws, toes, and horns; a pair of wings, made of black gauze, with red veins running through them, and in constant motion, expanded from his shoulders, and a most liberal length of tail, whose forked tip, he carried very gallantly over his arm. His distended goggle-eyes disturbed many a tête-a-tête, as he thrust himself between, and broke a soft sentence, or tender sentiment. He was every where, and always to play the devil. Even Brother Jonathan was among the medley, trying to drive a bargain. Faust and Margaret appeared for a short time. I recognised a young German student, that I knew, and there was a painful resemblance, in the reality, to the character assumed, that the sunny smile of his fair companion could not dissipate.

A short time previous to the carnival, some Piedmontese peasants exhibited through the streets of Rome, a pair of dancing bears, that performed their usual tricks to the great diversion of the crowd, that collected around them. A well-arranged skin, transformed some way into Bruin, was led about by a chain, and performed the feats of his rivals to perfection, not forgetting the usual finale of handing about his hat and receiving with bearish civility the coppers that he thrust into his huge mouth, which served him for a pocket. But to record half the tricks and frolicks of the carnival at Rome, would be an endless task. At one time, you are accosted by a smiling peasant-girl, that claims an acquaintance, and suddenly blinds you with the contents of a powder-puff, concealed beneath her apron. At another, a tug at your button arrests your notice, and turning to see from whence it comes, a handful is presented of all sorts, and a pair of scissors snapped in your face: of course, you imagine yours among them, and feel for the extent of your loss, which is greeted with a shout of laughter, at your expense, or a rap across the knuckles from the wooden sword of a harlequin, or the present of a string of macaroni from Pulcinello, by way of consolation.

In such scenes, passed off the carnival during eight days, from two o'clock in the afternoon, until midnight. On the last day, after the races, the Corso presented the singular appearance of thousands of lights, displayed at windows, carried in carriages, and by those on foot. He is, indeed, unfortunate, that cannot afford a light on the occasion. It is every one's business, to put out his neighbour's light, and preserve his own as long as he can. It is impossible to give an idea, of the effect produced—of the confusion, and glitter, when witnessed from a commanding position. At last, the lights gradually disappear, and the remainder of the evening is spent at the theatre, or at the table, to take a farewell of its luxuries. In the morning, Rome presents a gloomy picture: the city seems in mourning, for the happy faces of yesterday are no where to be found; there is not even a smile, that would have then passed for dejection.

There is a pleasure in weeping over afflictions for which none have ever wept before.

ECONOMY IN A FAMILY.

THERE is nothing which goes so far toward placing young people beyond the reach of poverty, as economy in the arrangement of their domestick affairs. It is as much impossible to get a ship across the Atlantick, with half a dozen butts started, or as many bolt-holes in her bottom, as to conduct the concerns of a family without economy. It matters not whether a man furnish little or much for his family, if there is a continual leakage in the kitchen, or in the parlour, it runs away, he knows not how, and that demon, *waste*, cries more, like the horse-leach's daughter, until he that provides has no more to give. It is the husband's duty to bring into the house, and it is the duty of the wife to see that nothing goes wrongly out of it; not the least article, however unimportant in itself, for it establishes a precedent; nor under any pretence, for it opens the door for ruin to stalk in. A man gets a wife to look after his affairs, and to assist him in his journey through life. The husband's interests should be the wife's care, and her greatest ambition carry her no farther than his welfare and happiness, together with that of her children. This should be her sole aim, and the theatre of her exploits in the bosom of her family, where she may do as much toward making a fortune as he positively can do in the counting-room or workshop. It is not the money *earned* that makes a man wealthy; it is what is saved from the earnings.

A good and prudent husband makes a deposite of the fruits of his labour with his best friend—and if that friend be not true to him, what has he to hope? if he dare not place confidence in the companion of his bosom, where is he to place it? A wife acts not for herself only, but she is the agent of many she loves, and she is bound to act for their good, and not for her own gratification. Her husband's good is the end at which she should aim, his approbation is her reward. Self-gratification in dress, or indulgence in appetite, or more company than his purse can well entertain, are equally pernicious. The first adds vanity to extravagance—the second fastens a doctor's bill to a long butcher's account, and the latter brings intemperance, the worst of all evils, in its train.

BEAUTY'S TRIUMPH.

An Olden song.

DOST thou love the blue to see,
In the boundless summer sky?
Sweeter blue I'll show to thee
In the orbit of an eye?

Roses of the purest red
Thou in every clime dost seek;
I can show a richer bed,
In a single damask cheek.

Thou wilt talk of virgin snow,
Seen in icy Norway land;
Brighter, purer, I can show,
In a little virgin hand!

Still for glittering locks and gay,
Thou wilt ever cite the sun;
Here's a simple tress—I pray,
Hath HE such a golden one?

Choose each vaunted gem and flower,
That must, sure, with triumph meet;
Come then to my beauty's bower,
Come—and cast them at her feet!

NATURAL HISTORY.

[The Condor.]

THE CONDOR.

THE condor is one of the largest of the rapacious birds. In size it is little, if at all, superiour to the bearded griffin, the lämmergeyer of the Alps, with which Buffon was disposed conjecturally to confound it, but to which it bears at most but a distant relation. The greatest authentick measurement scarcely carries the extent of its wings beyond fourteen feet, and it appears rarely to attain so gigantick a size. M. Humboldt met with none that exceeded nine feet, and was assured by many credible inhabitants of the province of Quito that they had never shot any that measured more than eleven. The length of a male specimen somewhat less than nine feet in expanse was three feet three inches from the tip of the beak to the extremity of the tail; and its height, when perching, with the neck partly withdrawn, two feet eight inches. Its beak was two inches and three quarters in length, and an inch and a quarter in depth when closed.

The beak of the condor is straight at the base, but the upper mandible becomes arched toward the point, and terminates in a strong and well-curved hook. The basal half is of an ash-brown, and the remaining portion toward the point is nearly white. The head and neck are bare of feathers, and covered with a hard, wrinkled, dusky reddish skin, on which are scattered some short brown or blackish hairs. On the top of the head, which is much flattened above, and extending some distance along the beak, is attached an oblong, firm caruncle or comb, covered by a continuation of the skin which invests the head. The organ is peculiar to the male. It is connected to the beak only in its anterior part, and is separated from it at the base in such a manner as to allow of a free passage of the air to the large oval nostrils, which are situated beneath it at that part. Behind

the eyes, which are somewhat elongated and not sunk beneath the general surface of the head, the skin of the neck is, as it were, gathered into a series of descending folds, extending obliquely from the back of the head, over the temples, to the under side of the neck, and there connected anteriorly with a lax membrane or wattle, capable of being dilated at pleasure, like that of the common turkey. The neck is marked by numerous deep parallel folds, produced by the habit of retracting the head in which the bird indulges when at rest. In this position scarcely any part of the neck is visible.

Round the lower part of the neck, both sexes, the female as well as the male, are furnished with a broad white ruff of downy feathers, which form the line of separation between the naked skin above and the true feathers covering the body below it. All the other feathers, with the exception of the wing-coverts and the secondary quill-feathers, are of a bright black, generally mingled with a grayish tinge of greater or less intensity. In the female the wing-coverts are blackish-gray; but the male has their points, and frequently as much as half their length, white. The wings of the latter are consequently distinguished from those of the female by their large white patches. The secondary quill-feathers of both sexes are white on the outer side. The tail is short and wedge-shaped. The legs are excessively thick and powerful, and are coloured of a bluish-gray, intermingled with whitish streaks. Their elongated toes are united at the base by a loose but very apparent membrane, and are terminated by long black talons of considerable thickness, but very little curved. The hinder toe is much shorter than the rest, and its talon, although more distinctly curved, is equally wanting in strength; a deficiency which renders the foot much less powerful as an organ of prehension than that of any other of the large birds of the Raptorial order.

The condor has been observed throughout the whole range of that immense chain of mountains which traverses the continent of South America, from the straits of Magellan to the seventh degree of north latitude. It appears, however, to be much more common in Peru and Chili than in any other part of the chain, and is most frequently met with at an elevation of from ten to fifteen thousand feet above the level of the ocean. Here, in the regions of perpetual snow, they may be seen grouped together to the number of three or four, but never in the large troops in which the true vultures sometimes assemble, on the bold points of the jutting rocks, many of the most remarkable of which are designated by the natives with names derived from the bird that haunts their pinnacles. It is only when driven by hunger that it descends into the plains, which it quits as soon as its appetite is satiated, unable, as it would seem, to support for any great length of time, the increased weight of the atmosphere and the warmer temperature of the lower world. On such occasions it rarely perches on the branches of the trees, but generally takes up a position on the ground, for resting on which its comparatively straight talons are peculiarly fitted. It is said that the female bird builds no nest, but deposites its eggs upon the bare rock without protection of any kind. These eggs are stated to be perfectly white and three or four inches in length. The female is also said to remain with her young for a whole year.

The habits of the condor partake of the bold ferocity of the eagle, and of the disgusting filthiness of the vulture. Although, like the latter, it appears to prefer the dead carcass, it frequently makes war upon a living prey; but the gripe of its talons is not sufficiently firm to enable it to carry off its victim through the air. Two of these birds, acting in concert, will frequently attack a puma, a lama, a calf, or even a full-grown cow. They will pursue the poor animal with unwearied pertinacity, lacerating it incessantly with their beaks and talons, until it falls exhausted with fatigue and loss of blood. Then, having first seized upon its tongue, they proceed to tear out its eyes, and commence their feast with these favourite morsels. The intestines form the second course of their banquet, which is usually continued until the birds have gorged themselves so fully as to render themselves incapable of using their wings in flight. The Indians, who are well acquainted with this effect of their voracity, are in the habit of turning it to account for their amusement in the chase. For this purpose they expose the dead body of a horse or a cow, by which some of the condors, which are generally hovering in the air in search of food, are speedily attracted. As soon as the birds have glutted themselves on the carcass, the Indians make their appearance armed with the lasso, and the condors, being unable to escape by flight, are pursued and caught by means of these singular weapons with the greatest certainty. This sport is a peculiar favourite in the country, where it is held in a degree of estimation second to that of a bullfight alone.

In tenacity of life the condor exceeds almost every other bird. M. Humboldt relates that during his stay at Riobamba he was present at some experiments which were made on one by the Indians who had taken it alive. They first strangled it with a lasso and hanged it on a tree, pulling it forcibly by the feet for several minutes; but scarcely was the lasso removed, when the bird arose and walked about as though nothing had occurred to affect it. It was then shot with three balls discharged from a pistol at less than four paces, all of which entered its body, and wounded it in the neck, chest, and abdomen; it still, however, kept its legs. Another ball struck its thigh, and it fell to the ground; this was preserved by M. Bonpland for considerable time as a memorial of the circumstance. Ulloa had previously asserted that in the colder parts of Peru the skin of the condor was so closely covered with feathers that eight or ten balls might be heard to strike it without penetrating its body. M. Humboldt's bird did not die of its wounds until after an interval of half an hour.

The stories which have long been current, on the authority of credulous travellers, imputing to the condor a propensity to carry off young children and even to attack men and women, appear to have originated solely in that common feeling which delights in regarding mere possibilities in the light of positive facts. M. Humboldt declares that he never heard of an instance in which a child was carried off, although the children of the Indians who collect the snow on the mountains for sale, are constantly left sleeping in the open air in the midst of these birds, and offer of course a temptation which would

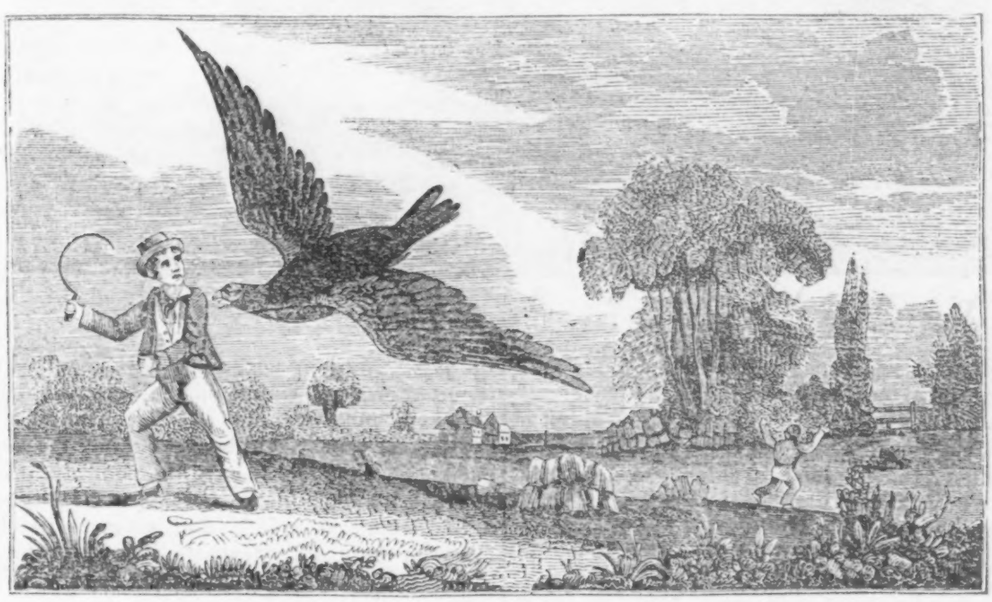
be irresistible if not counteracted by some peculiar instinct. With respect to the risk incurred by men, while he confesses that two of these birds would be dangerous enemies for a single man to encounter, he states that he has frequently approached them within ten or twelve feet, as they sat three or four together perched upon the rocks, and that they showed no disposition to attack him. The Indians of Quito, moreover, unanimously assured him that men have nothing to apprehend from the condors.

The eagle, however, has been known to attack and carry off children.

Bishop Heber, in his travels in India, passed through a mountainous district, where sad complains were made of their carrying off infant children; and we remember some years ago, in the Alps, that on a high-pointed pinnacle of inaccessible rock, jutting out from a peak of snow, near the summit of the Jung Frau, one of the highest of the Alpine range of mountain, there might be seen the tattered remains of the clothing of a poor child, who had been carried up by a lämmergeyer, or bearded vulture, from a valley below, in spite of the shouts of some peasants who saw the bird pounce upon its prize.

A more fortunate fate awaited a child in the isle of Skye in Scotland, where a woman having left it in the field for a short time, an eagle carried it off in its talons across a lake, and there deposited its burden; some people herding sheep perceived it, and hearing the infant cry, hurried to the spot, and found it uninjured. The name of the child was Niel, but he was afterward distinguished and called by a Gaelick word, signifying eagle. In Sweden, a deplorable circumstance occurred to the mother of a child; she was working in the fields, and had laid her infant on the ground, at a little distance; soon after an eagle darted down and carried it off. For a considerable time the wretched woman heard the poor child screaming in the air; but there was no help. She saw it no more; in a little time she lost her reason, and is, we believe, still living, confined in the lunatick asylum of the town near which it happened.

On Tirst Holm, one of the Ferroe islands, situated between the north of Scotland and Iceland, a similar fact occurred; an eagle caught up an infant lying at a little distance from its mother, and carried it to its nest, situated on a point of a high rock, so steep, that the boldest bird-catchers had never ventured to attempt to climb it; the mother, however, ascended, and reached the nest, but, alas! too late: the child was dead, and its eyes torn out.



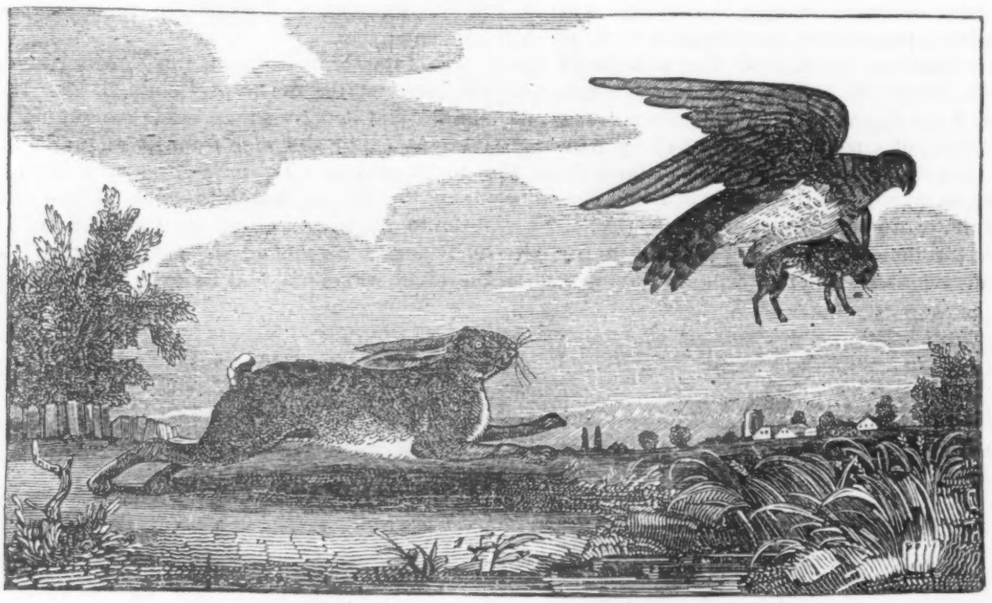
[Contest between a Boy and an Eagle.]

But the most striking story we have met with, is the brave behaviour of a little boy in the state of New York. Two boys, the one seven, and the other five years old, were amusing themselves by trying to reap, while their parents were at dinner. A large eagle soon came sailing over them, and with a sudden sweep attempted to seize the eldest, but luckily missed him. The bird, not at all dismayed, alighted at a short distance, and in a few moments repeated his attempt. The bold little fellow, however, gallantly defended himself with the sickle, which he fortunately held in his hand, and when the bird rushed upon him, resolutely struck at it. The sickle entered under the left wing, and the blow having been given strongly, went through the ribs, and piercing the liver, proved fatal. On opening the bird's stomach, it was found entirely empty, which may explain in some degree the cause of so unusual an attack. The brave little boy did not receive a scratch, though there can be little doubt, that had the bird not been weakened by hunger, a blow or two from its sharp strong beak would have penetrated through the scull into the brain, and caused instant death.

Eagles of this particular sort are very common in that part of the country, and are often known to carry off a turkey, or even a goose, but this was the first instance of their attacking children, though in New South Wales, a celebrated navigator, Captain Flinders, met with something of the same sort. He was walking with some of his officers, when a large eagle, with a fierce aspect, and outspread wing, was

seen bounding toward them, but stopping short at about twenty yards off, he flew up into a tree. Soon after, another bird of the same kind discovered himself, and flying above their heads, made a sudden pounce downward, but checked himself before he actually touched them. Captain Flinders supposed that they took him and his party for Kangaroos, which when sitting up on their hind legs, according to their usual habit, are about the height and form of a man. On these animals the eagles were observed to feed, having been seen watching quietly in the trees till a kangaroo made its appearance, when down they flew and tore it in pieces in an instant. Probably this was the truth, for the country was very desolate, and as far as they could judge, uninhabited, so that the eagles might never have seen men before.

The immense power of wing of the rapacious birds however, is more decidedly shown by the fact of so small a bird as the kestrel, weighing only six ounces and a half, and having an expansion of wing of only twenty-seven inches, having been known to dart upon a weasel, an animal its equal, nearly, in size and actually mount aloft with it. As in the case of the eagle, it suffered for its temerity, for it had not proceeded far, when both were observed to fall from a considerable height. The weasel ran off unhurt, but the kestrel was found to have been killed by a bite in the throat.



[Hawk carrying off a Leveret.]

The following is a strong corroboration of the truth of the story just mentioned, as far as the powers of a hawk to raise comparatively heavy weights, but is more curious, as exhibiting the courage displayed in one of the most timid animals in defence of its young. It occurred in Yorkshire. In the spring, a gentleman walking in the fields saw a small hawk, attempting to fly off with some prey it had just pounced upon, but evidently prevented by the weight of its capture from rising to any height above the ground. It was pursued by a hare, which whenever it came within her reach, attacked it with her paws, and at last succeeded in knocking it down, when it dropped its prey. At this moment, the gentleman ran forward and the hawk and its pursuer both made their retreat; upon his reaching the spot where the prey had been dropped, he found it to be a fine leveret, which at once explained the cause of the parent hare's gallant attack on the hawk. It was wounded on the side of the head, and was bleeding, but the gentleman left it in a furrow, hoping that the wound might not prove fatal, and that the mother might find it and reap the reward of her maternal attachment.

It may seem extraordinary that they should presume to meddle with living things of their own size and weight, but it is still more remarkable that they should occasionally wage successful warfare with birds still larger than themselves, as for instance with the jay. Not long ago, some boys observed a hawk flying after a jay, which, on reaching, it immediately attacked, and both fell on a stubble-field, where the contest appeared to be carried on; the boys hastened up, but too late to save the poor jay, which was at the last gasp; in the agonies of death, however, it had contrived to infix, and entangle its claws so firmly in the hawk's feathers, that the latter, unable to escape, was carried off by the boys, who brought it home, when on examination it proved to be a kestrel. The sparrow-hawk of North America, (*Falco sparverius*,) which is more nearly allied to the kestrel than ours, is often known to attack the bluejay of that country. No wonder that jays have a great dislike to this hawk, and never fail to annoy it by every means in their power. Sometimes they will follow in order to plague it, at other times, they, by imitating his note, will deceive and draw it from its haunts. In return for all this abuse, the hawk now and then revenges itself by killing and eating the fattest of its persecutors.

THE OPOSSUM.

THE cut opposite represents the opossum. A genus of marsupial, or pouched animals, inhabiting the American continent, and the first animals of this singular order which are known to naturalists. Their generick characters are ten incisive teeth in the up-

[The Opossum.]

per jaw, and eight in the under, the intermediate ones in the upper jaw being longer than the rest; the three front grinders compressed, and the last four tuberculated; those above triangular, but the under ones oblong, and two canines in each jaw, making in all fifty teeth, which is a greater number than is possessed by quadrupeds of any other genus. Their gape is wide, and the appearance of the mouth ragged; but their bite is feeble, compared with the size of their biting apparatus. Their tongues are beset with horny tubercles, like those on the tongue of a cat; and their tail is in part naked on the under side, and prehensile. Their ears are very large and naked, and their aspect is altogether very peculiar. Their hind feet have the thumb or fifth toe long, and capable of acting in opposition to the other four, so as to lay hold like a hand. The four toes which act together on the hind feet are furnished with nails; and when not used in grasping, the nailless one is turned to the rear, like the hind toe of a bird. Their legs are short in proportion to the size of their bodies; they plant their feet upon the round pad of the sole when they walk, and their rate of motion on the ground is but slow. In trees, however, which the greater number of them chiefly inhabit, they have much power of themselves, and climb and hold on with much address. Their eyes have the irides yellow, and the pupils are vertical, like those of the fox. It has been said of them that they have a gape like a pike, the ears of a bat, the feet of an ape, and the tail of a serpent; and, certainly, taking their characters all in all, they differ very much from the placental mammalia. The difference extends not only to the form of the body, and the structure of those parts upon which the classification is founded, but it extends to the very covering, the hair of the opossum being unlike that of most other animals. It is neither sleek nor frizzled; and it has more resemblance to whalebone than to common hair, and on the naked parts there are sometimes scales. This uncouth sort of covering the semi-transparent ears, which appear reddish when seen against the light, the yellow sinister eyes, the short legs, and the singularly-formed feet, give these animals a repulsive appearance, which is in nowise diminished by the very fetid and offensive odour which they give out. The different species vary considerably in their habits; but they may be generally described as nocturnal animals, the principal part of which inhabit trees, in the holes of which they lodge; and they prey upon birds, lizards, and other small animals. Some of them also haunt the waters and feed upon shelled mollusca and crustacea.

All the species have the general characters of marsupial animals, the most remarkable of which in the skeleton are the two marsupial bones attached to the pubis, which support the pouch.

They are, as we have said, all nocturnal animals; and they are all carnivorous: but they do not possess the same degree of power and energy as the carnivorous animals, properly so called: and they are remarkable for stupidity, or at all events they do not display the same cunning as the fox, though their eyes resemble those of that animal. The habit is

different, however, for the opossums, generally speaking, seek their prey in trees, whereas the fox is an animal which, though fond of brakes and other cover, is incapable of climbing. The form of their hind feet enables them to lay hold of a branch, and retain that hold, while they have a perfect command of the head and anterior extremities for other purposes. Thus they can make use of the crooked claws with which their fore feet are armed, to help them in the capture of their prey. At settlements near the woods, where they are plentiful, these animals are sometimes apt to play the weasel in poultry-yards; and, like that animal, they suck the blood of their victims.

It is not a little singular that marsupial animals should be found in two zones of the earth, which lie nearly on opposite meridians, the centre of the one about 120° east, and the other about 60° west of the meridian of London; and that in all the districts between them there should be no animal of this character, or even approaching to it. What stage of the geological duration of countries may answer to animals of this singular order, it is not easy to say; for, though we admit that a few specimens have been found fossil in our own latitudes, it is impossible for us thence to conclude that the animals belong either to an early or a late stage of the country; for we have them in the rich woods of South America, and in the comparatively barren extent of New Holland, while there are none in Southern Africa, which is intermediate between these, and partakes of the characters of both.

In some of the species, the female is furnished with a distinct abdominal pouch for the reception of her young during a portion of the period of gestation, and as a place of safety occasionally till they are able to shift for themselves; and this pouch is more developed in some than in others.

The Virginian Opossum.—This species is by far the best known, from its abundance in the southern states. But as it is very generally distributed over America as far as the borders of Patagonia, or at all events to the margins of the Pampas, the name Virginian is by no means descriptive of it, as it is found over a range in latitude of certainly not less than five thousand miles, while the individuals are far more numerous in South than in North America, if the whole surface of each be taken.

The usual size of the opossum is the same as that of a cat; its covering consists of a mixture of black and white hairs, with the ears having the one part black and the other white. The head often entirely white. It is very generally distributed, inhabits the woods, is not timid in the vicinity of settled places, prowls about in the night, killing poultry, sucking eggs, and committing other little depredations; but we need hardly add that, to man, it is quite harmless. The young, which are often as many as seven in number, are exceedingly light and small, at the time of their birth, that is, the time of their first birth, when transferred from the internal uterus to the pouch. The gestation in the uterus lasts twenty-six days, at the end of which the young have no vestiges of eyes or of ears, and are, indeed, little else than small lumps of gelatinous matter. They do not open their eyes till about the fiftieth day; but they readily find out the teats in the pouch, and attaching themselves to these, they increase in size. They remain in the pouch, or at least resort to it occasionally as a place of safety, until they are grown to about the size of rats.

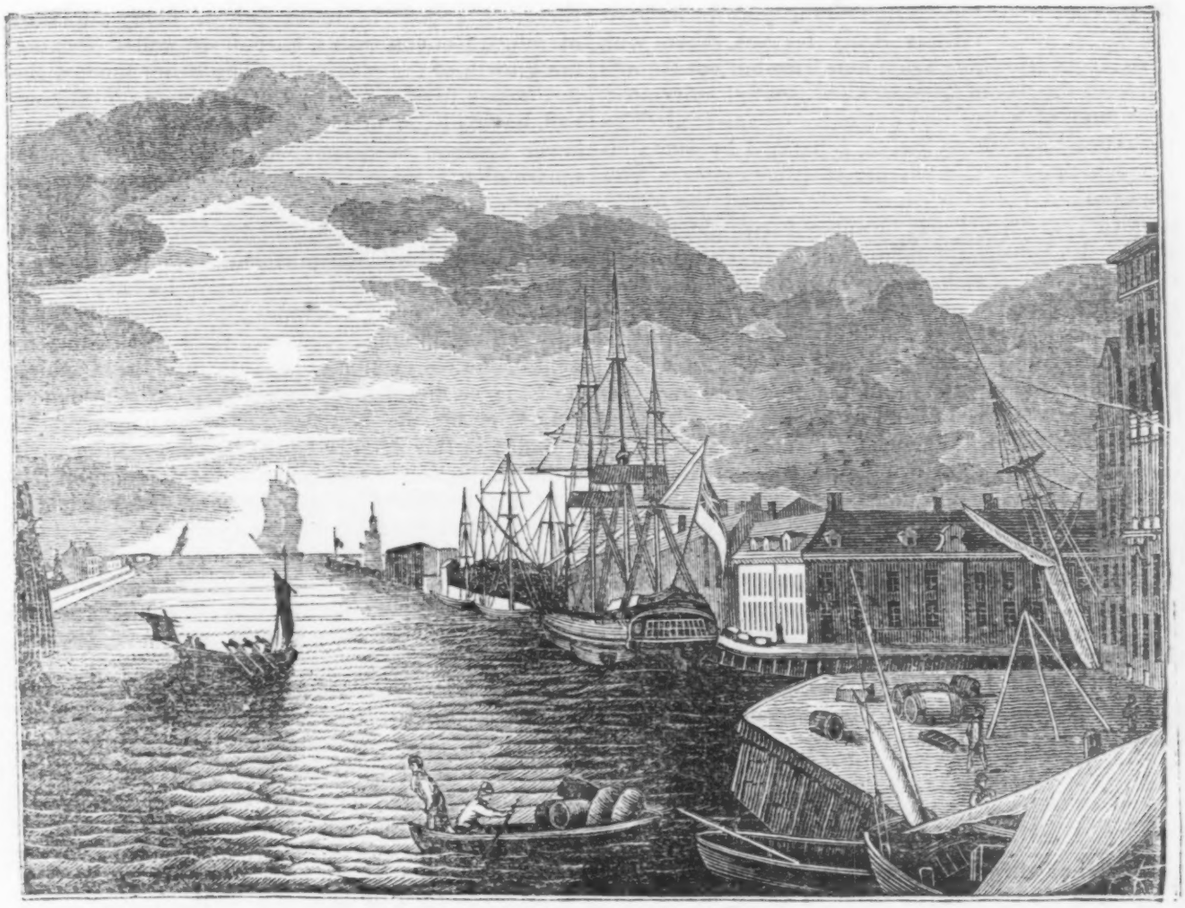
The Virginian opossum, extending as it does over so vast a range in latitude, is subject to much variation of colour. There is also considerable difference between the appearance of the young ones and those which have arrived at perfect maturity. The body of the young animal is generally of a yellowish gray, mixed with some hairs entirely white, and others entirely black; the last of which are most abundant along the back, and give that part of the animal the appearance of being marked with a dorsal line. A band of a similar colour descends from each side of the neck to the fore legs; these legs and also the hind ones are covered with black hairs, and the tail is covered with scales, with a few short and weak hairs thinly interspersed. The hands, that is, the prehensile parts of the hind feet, the ears, and the point of the muzzle, are naked. The skin on the soles of the feet is violet black; but the toes and nails are flesh-coloured. The whiskers appear to be used as instruments of touch, as is the case with all mammalia which seek their prey by night; and it is presumed also, that the toes, which have a very delicate covering, are highly sensitive. The eyes are small, without any external lids, and are remarkable for their convexity and consequent projection beyond their sockets; and from this peculiar structure of the eye, it is probable that the animal sees only at short distances, but that its vision there is quite microscopick.

From the structure of the nose it is presumed that the sense of smell is very acute; but it cannot be very delicate in our way of estimating; for in that case the animal would be perfectly intolerable to itself, the odour which it emits when disturbed or threatened being described as one of the most offensive in nature.

In many parts of South America the opossum is so abundant that it prowls about in the villages, and even in the towns. D'Azzara mentions that they are frequently found lying dead in the villages, near the shores of La Plata, and even in the streets of Monte Video. He was the first to get a correct account of the marsupial apparatus of the female, which we shall give in nearly his own words: "The female has the whole length of the belly cleft or slit, and appearing like a person's waistcoat buttoned only at the top and bottom. This cavity the animal has the power of firmly closing. Within it are thirteen teats, extremely small, one in the centre, and the rest ranged round it."

Before the female comes to maturity, this marsupial apparatus is but little developed, there being only a slight fold of skin on each side the abdomen. After the young are weaned, the marsupium also collapses, and it is gradually reproduced as the time approaches when it is to receive a new litter.

Composition of Vegetable Substances.—Azote is an invariable part of the compound of all the animals, but not of plants, while carbon is the characteristick of the latter. On burning them, the azotick smell immediately marks the animal. The most essential of the compounds of vegetables are, carbon, oxygen, and hydrogen merely



[Havre.]

HAVRE.

Havre is a large commercial town in the north of France, and is situated at the influx of the Seine into the English channel. This town is strongly fortified, being surrounded by walls and defended by a citadel, which is considered the most regular and best constructed in France. It is believed to have been founded by Louis XII., but when Francis I. ascended the throne, in 1515, it was but a mere creek, in which fishermen sought refuge in stormy weather, having only a chapel dedicated to our Lady of Grace, which has disappeared, and a tavern or house of refreshment, still existing, with a boat and boatman, rudely carved on stone, which was probably its sign. Francis I. built a town here, and fortified it against the English. By a curious destiny Francis lost the battle of Pavia and his liberty, and Havre was almost destroyed by an inundation in the same year. Restored to France, he reconstructed Havre, and in the port built a ship of a thousand tuns, colossal in his time, having on board a forge, windmill, chapel, tennis-court, and perfect in all respects—except that it would not float—as appears from Rabelais. In 1545, a fleet of two hundred vessels, in the roadstead of Havre, menaced Henry VIII. and England. Francis I. came to Havre with his court, and gave a grand fete on board the "Philip." During the rejoicing, the ship-kitchen took fire; the ship was instantly in a blaze, and the royal party had hardly left it when, in the midst of the flames, a hundred cannon, charged for the purpose of being fired off in honour of the fete, thundered with a single and most tremendous volley, by which the ship was destroyed, and several lives lost.

The reformed religion was that of the majority of the inhabitants of Havre; and the protestants called in the English to their aid in October, 1562. The English being obliged to surrender the town by capitulation, after twenty two days' siege, departed with the honours of war, and an epidemick, by which more than twenty thousand perished in London, during the three months succeeding the return of the fleet. Cardinal Richelieu, next to Francis I., was the great benefactor of this town. He improved the harbour, built fortresses, and established a foundry, every cannon from which, bore his name. Havre was bombarded by William III. in 1694, and by admiral Rodney in 1759. It was not till 1786 that the great publick works which now distinguish it were projected. Here Sir Sidney Smith, in 1796, by an enterprise of rare hardihood, cut out the French cruiser "Le Vengeur," and, by an equally bold manoeuvre of the second in command of the Vengeur, was taken into Havre on board his own prize.

Bonaparte visited Havre for the first time in 1802, after the peace of Amiens, and saw its capabilities for being the first town in France in maritime commerce, and the best roadstead for the most numerous fleet. He again visited it in 1810, with the emperess Maria Louisa. To him Havre owes the great improvement of its port and its publick works. The cocks and sluices, on a peculiar site and grand scale, are the most important and interesting of the publick works. The docks form a segment of a vast circle,

partly embracing the town, with the quay for its base. In these, some vessels ready for sea, others with their keels up, others again new built but not launched, with the din of hammers and general movement, give proof of active and extensive commerce. The port consists of three basins, separated by four sluices, which admit the passing of two frigates. The roadstead of Havre is capable of holding the whole navy of France, and may be entered with almost any wind. Its special commerce is the direct import of colonial produce, and the export of the manufactured goods and produce of France; but it carries on also an extensive trade with the United States of America and maritime states of Europe. Within a few years after the restoration of the Bourbons and the peace, it has taken the lead of all the French ports in the Atlantick, and especially invaded the trade of Bordeaux. There are two lighthouses on the summit of La Heve, which command a view of the sea at twenty leagues' distance. Havre has also considerable manufactures of several kinds, of which the principal are tobacco, cordage, lace, sugar, china, vitriol, paper, and cotton.

The town is surmounted by the beautiful suburb of Ingouville, on the brow of a hill, partly wooded, and partly studded with pretty houses, having an extensive view of the sea. Havre contains nearly thirty thousand inhabitants.

MANUFACTURE OF TEA.

As tea has always held so principal a place in our intercourse with China, it requires some particular consideration, as an article of commerce. We have seen before, that the fineness and dearness of tea are determined by the tenderness and smallness of the leaf when picked. The various descriptions of the black diminish in quality and value as they are gathered later in the season, until they reach the lowest kind, called by us Bohea, and by the Chinese (*Tachia*) "large tea," on account of the maturity and size of the leaves. The early leaf buds in spring, being covered with a white silky down, are gathered to make Pekoe, which is a corruption of the Canton name, *Pak-ho*, "white down." A few days' longer growth produces what is here styled "black-leaved Pekoe." The more fleshy and matured leaves constitute Souchong; as they grow larger and coarser they form Congou; and the last and latest picking is Bohea. The tea farmers, who are small proprietors or cultivators, give the tea a rough preparation, and then take it to the contractors, whose business it is to adapt its further preparation to the existing nature of the demand. The different kinds of tea may be considered in the ascending scale of their value.

1. Bohea, which in England is the name of a *quality*, has been already stated to be, in China, the name of a *district* where various kinds of black tea are produced. The coarse leaf brought under that name to this country is distinguished by containing a larger proportion of the woody fibre than other teas; its infusion is of a darker colour, and, as it has been more subjected to the action of fire, it keeps a longer time without becoming musty than the finer sorts. Two kinds of Bohea are brought from China: the lowest of these is manufactured on the spot, and therefore called "Canton Bohea," being a mixture of refuse Congou with a coarse tea called Woping, the growth of the province. The better kind of Bohea comes from the district of that name in Fokien, and, having been of late esteemed equally with the lower Congou teas, has been packed in the same square chests, while the old Bohea package is of an oblong shape.

2. Congou, the next higher kind, is named from a corruption of the Chinese *Koong-foo*, "labour or assiduity." It formed for many years the bulk of the East India Company's cargoes; but the quality gradually fell off, in consequence of the partial abandonment of the old system of annual contracts, by which the Chinese merchants were assured of a remunerating price for the better sorts. The consumption of Bohea in this country has of late years increased, to the diminution of Congou, and the standard of the latter has been considerably lowered. A particular variety, called *Campoi*, is so called from a corruption of the original name, *Kien-poey*, "selection—choice;" but it has ceased to be prized in this country, from the absence of strength—a characteristick which is stated to be generally esteemed beyond delicacy of flavour.

3. Souchong (*Seaou-choong*, "small or scarce sort") is the finest of the stronger black teas, with a leaf that is generally entire and curly, but more young than in the coarser kinds. What is called "Padre Souchong" is packed in separate paper bundles, of about half a pound each, and is so fine as to be used almost exclusively for presents. The probability is, that its use in that way by the Catholick missionaries first gave rise to the name. The finest kinds of Souchong are sometimes scented with the flowers of the *Chloranthus inconspicuus*, and *Gardenia florida*; and they cannot be obtained, even among the Chinese, except at dear prices. A highly crisped and curled leaf, called *Sonchi*, has lately grown into disrepute and been much discussed, in consequence of being often found to contain a ferruginous dust, which was probably not intended as a fraud, but arose from the nature of the ground, where the tea had been carelessly and dirtily packed.

4. Pekoe being composed mainly of the young spring buds, the gathering of these must, of course, be injurious in some degree to the future produce of the shrub, and this description of tea is accordingly both dear and small in quantity. With a view to preserve the fineness of flavour, the application of heat is very limited in drying the leaves, and hence it is, that Pekoe is more liable to injury from keeping than any other sort of tea. There is a species of Pekoe made in the green-tea country, from the young buds, in like manner with the black kind; but it is so little fired that the least damp spoils it; and for this reason, as well as on account of its scarcity and high price, the Hyson-pekoe, as some call it, has never been brought to England. The mandarins send it in very small canisters to each other, or to their friends, as presents, under the name of *Loongtsing*, which is probably the name of the district where the tea is made.

Green teas may generally be divided into five denominations, which are: 1, Twankay; 2, Hysonskin; 3, Hyson; 4, Gunpowder; 5, Young Hyson. Twankay tea has always formed the bulk of the green teas imported into this country, being used by

[Tea-plant.]

the retailers to mix with the finer kinds. The leaf is older, and not so much twisted or rolled as in the dearer descriptions: there is altogether less care and trouble bestowed on its preparation. It is, in fact, the *Bohea* of green teas; and the quantity of it brought to England has fully equalled three fourths of the whole importation of green. "Hyson skin" is so named from the original Chinese term, in which connexion the *skin* means the *refuse*, or inferiour portion of any thing; in allusion, perhaps, to the hide of an animal, or the rind of fruit. In preparing the fine tea called Hyson, all those leaves that are of a coarser, yellower, and less twisted or rolled appearance, are set apart and sold as the refuse or "skin tea," at a much inferiour price. The whole quantity, therefore, depends on, and bears a proportion to, the whole quantity of Hyson manufactured, but seldom exceeds two or three thousand chests in all.

The word Hyson is corrupted from the Chinese name, which signifies "flourishing spring," this fine sort of tea being of course gathered in the early part of the season. Every separate leaf is twisted and rolled by hand, and it is on account of the extreme care and labour required in its preparation that the best Hyson tea is so difficult to procure, and so expensive. By way of keeping up its quality, the East India Company used to give a premium for the two best lots annually presented to them for selection; and the tea-merchants were stimulated to exertion, as much by the credit of the thing, as by the actual gain in price. Gunpowder, as it is called, is nothing but a more carefully picked Hyson, consisting of the best rolled and roundest leaves, which give it that *granular* appearance whence it derives its name. For a similar reason the Chinese call it *Choo-cha*, "pearl tea." Young Hyson, until it was spoiled by the large demand of the Americans, was a genuine, delicate young leaf, called in the original language *Yu-tsien*, "before the rains," because gathered in the early spring. As it could not be fairly produced in any large quantities, the call for it on the part of the Americans was answered by cutting up and sifting *other* green tea through sieves of a certain size; and, as the company's inspectors detected the imposture, it formed no portion of their London importations. But the abuse became still worse of late, for the coarsest *black* tea leaves have been cut up, and then *coloured* with a preparation resembling the hue of green teas.

Nothing could be more ill-founded than the vulgar notion, once prevalent in this country, that the colour of green tea was derived from its being dried on plates of copper. Admitting that copper were the metal on which they were placed, it does not at all follow that they should assume such an appearance from the operation; but the pans really used on these occasions are of cast iron, of the same round or spherical shape as the tatch described under the head of chymistry. Each of these pans is bricked in, over a small furnace. A quantity of fresh leaves are placed in the pan, after it has been sufficiently heated, and stirred rapidly round by the hand, to expose them equally to the action of the heat, and at the same time prevent their burning. After being a little curled by this drying operation, they are taken out and twisted or rolled by hand to assist the natural tendency; and the process of curling is continued for a longer or shorter time, according to the nature and quality of the tea. The hand seems to have most to do in the case of green teas, and the fire in that of the black. In the preparation of the finer teas, much care and attention is bestowed on the selection of the *best leaves* subsequent to drying; as in the separation of the hyson from its *skin*, or refuse—a business which falls to the lot of women and children. The tea, when prepared, is first of all put up in baskets, and subsequently packed by the contractors in chests and canisters. The black teas are trodden down with the feet, to make them pack closer: but the green-tea leaves would be crushed and broken by so rude a process; they are accordingly only shaken into the chests. J. F. Davis.

CHESS.

Chess is the most celebrated and general of all the sedentary games. One of the greatest charms of this game lies, no doubt, in the circumstance, that whilst man is everywhere surrounded by chance, in this game, as generally played, he has entirely excluded it, except that it must be decided by chance which of the two players shall begin. The game affords so much variety, so much scope for calculation, so many opportunities to exhibit foresight and penetration, that it has been held in great esteem by all nations acquainted with it, and all persons who have conquered the difficulties of learning it. The Mohammedans except chess from the law against gambling. Whilst this game affords enjoyment wor-

thy of mature minds, it is an excellent exercise for the young, as it teaches patience and circumspection, strengthens the judgement, and encourages perseverance in a plan affording a prospect of eventual success, though at the moment the situation of things may appear very critical. The Chinese pretend to have known it two hundred years previous to our era. It was brought in the sixth century from India to Persia, whence it was spread by the Arabians and the crusaders all over the civilized world. It is most commonly used in Asia. In fact its whole composition and its name prove its Asiatick origin. In Sanscrit it is called *schthrantsh*, a word which is believed to indicate the most important component parts of an ancient Eastern army—elephants, infantry, baggage-wagons, and horses. But this name was supplanted by the Persian term *shah*, (king,) which the game has retained, more on less corrupted, in all languages. A proof of the great antiquity of the game of chess in Great Britain, will be found in the curious discovery which was made in Scotland in 1831. A number of ancient chessmen were found, which are now deposited in the British Museum.

Generally, chess is played by two persons upon a board, the same as that used in draughts or checkers, of sixty-four squares. The board must be so placed that each player has a white square at his right hand. The squares are named from the pieces, viz.: that on which the king is placed is called the *king's square*; that on which the king's pawn is placed, the *king's second square*; that before the pawn, the *king's third square*; the next, the *king's fourth*; and so on with all the pieces of each side. Each player has eight pieces and eight pawns. In placing the pieces, the ancient rule is to be followed—*servat regina colorem* (the queen maintains the colour)—that is, the black queen is to be placed on the black square in the middle of the line next to the player; in a similar way the white queen on the white field. On the side of the king and the queen stand the bishops: then follow the two knights; and last, the rooks, or castles. The object of the game is to bring the adversary's king into such a situation that he cannot move, which is called *checkmating*. The king can never be taken. The play ends with a checkmate. (It is related of Dr. Franklin, that once playing chess in Paris, and being checkmated, he said, "Take the king; I am a republican, and don't care for him.") It is not uninteresting to consider the different names which the pieces have received in various countries. In the East the queen is called by the more proper name of vizier or general.

The bishops are called in Germany *runners*; and in France *fools*, (*fous.*) These were originally elephants, with giants on them. The knights are called in German *leapers*. The castles were originally *war-chariots*, which is also indicated by the word *rook*, from the Indian *roch* or *roth*. With the old Germans the pawns, now called *peasants*, were styled *Wenden*, (Vandals,) a tribe despised by the Germans. Don John of Austria had a room, the floor of which was made like a chessboard. On this he played with living persons. The peasants of a German village, Stropke, or Strobeck, near Halberstadt, for about three hundred years, have been distinguished as chessplayers. The most probable opinion is, that a certain bishop who lived among them made them acquainted with this game, and freed them from several taxes on condition that they would continue to practise it.

Numerous anecdotes show how much the game of chess can absorb the mind. The Elector of Saxony, John Frederick, was taken prisoner in the battle at Muhlberg, by the emperour Charles V., and was playing at chess with his fellow-prisoner, Ernest of Brunswick, when it was intimated to him that the emperour had sentenced him to death. He paused for a moment to remark on the irregularity of the proceeding, and immediately resumed the game, which he won, and expressed in a lively manner the pleasure which he derived from his victory. Charles XII. of Sweden played at chess when he was so closely besieged in a house near Bender, by the Turks. Al Amin, calif of Bagdad, would not be disturbed in chessplaying when the city was carried by assault. Frederick the Great loved chess much. Napoleon did not play it particularly well.

Laws of the game.—1. If the board, or pieces, be improperly placed, the mistake cannot be rectified after four moves on each side are played. 2. When a player has touched a piece, he must move it, unless it were to replace it; when he must say, *J'adoube*, or *I replace*. 3. When a player has quitted a piece, he cannot recall the move. 4. If a player touch one of his adversary's pieces without saying *J'adoube*, he may be compelled to take it, or, if it cannot be taken, to move his king. 5. When a pawn is moved two steps, it may be taken by any adversary's pawn which it passes, and the capturing pawn must be placed in that square over which the other leaps. 6. The king cannot castle if he has before moved, if he is in *check*, if in castling he passes a check, or if the rook has moved. 7. Whenever a player *checks* his adversary's king, he must say *Check*, otherwise the adversary need not notice the check. If the player should on the next move attack the queen, or any other piece, and then say *Check*, his adversary may replace his last move, and defend his king. 8. When a pawn reaches the first row of the adversary's side, it may be made a queen, or any other piece the player chooses. 9. If a false move be made, and is not discovered until the next move is completed, it cannot be recalled. 10. The king cannot be moved into check, nor within one square of the adverse king, nor can any player move a piece or pawn that leaves his king in check.

HOUSEHOLD DUTIES.

Clear starching, to be well done, requires very careful previous washing; and in the case of lawns, muslins, and similar fine articles, they must be washed the way the selvage runs, to prevent fraying, in very clear hot water, but not too hot, as very hot water is apt to give them a yellow tinge. Strain the water before using it through a clear cloth into a pan, then take a small quantity, or according to the extent of the wash, of the best soap, put it upon a clean stick, and therewith beat up a lather; but avoid using a whisk in this process, as it is apt both to leave splinters in the water which may tear the things, and to render the water yellow.

When the lather has been thus prepared, let the foulest of the light articles be put in one by one to soak out the dirt. They are then, while the water

is still warm, to be washed out one by one, which prevents tearing. When well washed, let them be squeezed very hard between both hands, so as to press out all the foul suds; and, with the same view, when rinsing them out, shake them open into the pan they are put into.

Now prepare a second lather similar to the first, and let the water in this be considerably hotter, though not quite scalding hot. Into this lather let the articles be put one by one as before, letting them stand a little, but washing them out as before, while the water is warm, and squeezing them hard when taken out.

Prepare a third lather with water scalding hot, but not boiling, as that is apt to render the things yellow. Then put a small quantity of powder-blue into a cup with about as much water as will wet it, shaking the cup about to mix it when it is to be poured into the scalding water, and stirred about till it is sufficiently blue. Then a lather is to be made of it with soap as before, the yellowest articles being put in first, and the whole covered with a clean cloth. They may either be washed out whilst warm, or be allowed to stand all night, for all the foulness ought now to have disappeared, and standing in the water will tend to clear them.

In washing these articles out of the last lather, the blue ought all to be washed out, then they must be laid in clear spring or pump water. If there be not sufficient time to starch them all at once, let no more be done than there is time to finish; because lying in the starch will make them look yellow, and they may remain in the spring water till there is leisure to go on with the starching, provided this be not longer than two days, for fear of mildew.

It is not considered proper to boil fine articles, as it not only wears them soon out, but is apt to give them a yellow tinge. Fine articles should not have soap rubbed upon them, because the washing and rinsing them to get out the soap causes them to fray.

Rinsing.—In order to rinse fine articles before starching, put some spring or pump water into a clean pan; and, putting a small portion of blue in a cup, wet with a little water, shake it so as to mix it, and put it into the water, in small quantities, stirring it about with the hand. Into this water, put the whitest of the fine articles one by one, previously squeezing them hard. Two or three will be enough at a time, for if many be put in, the blue will settle upon them, and make them appear clouded and marbled. When any blue does settle in this manner accidentally, let the parts be rubbed lightly by hand in the water, and it will not be difficult to get it off.

If any of the finer articles be yellow, a greater portion of blue added to the rinsing water will be advantageous.

After rinsing out the articles, let them be squeezed one by one between the hands very hard, for if any water be left in they will not take the starch. Then pull them out one by one with very dry hands; double them, and lay them on a clean dry cloth previously to the operation of starching. Some people starch the articles in a dry state, but this is not only apt to fray them, but makes them yellow and stiff.

Starching.—For caps, muslins, and other fine articles, prepare the starch by taking a pint of spring or pump water to a quarter of a pound of starch; and a little gum-arabick or isingglass may be added. Warm the water a little more than milk warm, in a very clean saucepan over a clear fire, and strain it, if isinglass be used; put in the starch, and slowly stir it round in one direction, till it just boils up and no more; for, if it is allowed to boil long it renders it yellow. Take it off and pour it into a clean pan, covering it over with a plate till it becomes cold.

It will prevent the starch from being too sticky, if a small piece of *rendered* mutton suet be added to it; but some use a mould candle, stirring the starch about with it just before it boils.

It will also make the starch much clearer, and consequently will render the articles clearer, and make them keep longer, to prepare the water by putting into a pint of water, a piece of alum the size of a walnut, letting the whole come to a boil in a clean saucepan. Pour this out into a pan containing three pailfuls of water, cover it over, and let it stand twelve hours, when it will be rendered very clear and well adapted both for making clear starch, and for washing or rinsing fine articles.

The made starch, when cold, is to be mixed with a little blue, by taking some blue in one hand and a portion of starch in the other, so as to incorporate them thoroughly. When blued starch is used, this is, of course, unnecessary. Care must be taken not to make the starch too blue, and no more should be made at once, than is to be immediately used; because, when allowed to stand, it tinges the articles yellow.

Let the articles, according to circumstances, be doubled by the selvages, and taking them one by one in the left hand, spread the starch upon them with the right, taking care not to put it on too thick. Put the starch first on one side and then on the other, without opening such articles as are double. It will be best in this process to begin first with the finest caps or the like, letting those of thicker fabrick come last, for the starch that comes out of the finer things will do well enough for those that are coarser, such as aprons and handkerchiefs, thin starch being best for thick fabricks, as thick starch renders them too stiff.

When the caps and other fine articles have been done over with the starch, and well kneaded with the fist doubled, till the starch sticks about the hands; they must then be wrung pretty hard and wiped with a dry cloth. They must afterward be opened out and rubbed very slightly through the hand.

Clapping.—In the case of caps and other fine articles, when they have been opened and rubbed through the hands, take the two ends of the lappets or the corners of things so shaped to the middle of the article, and holding them in this manner, let them be clapped altogether between the hands very hard. During the process of clapping, the hands must be washed whenever any starch or wet adheres to them. After clapping, with very dry hands, let the articles be carefully pulled in two directions, being attentive not to produce any fraying; and this is readily caused by portions of starch sticking to the hands. While the articles are being pulled as just directed, they must, from time to time, be held up against the light, to ascertain whether they have been sufficiently clapped.

On looking through the articles when held up against the light, if any spot appears shining, from

the starch remaining there, it must be gently rubbed with the hand quite dry. When the things are clapped enough, they will stick to the hands and separate easily. It is important to clap very hard and very quick, to prevent the articles from being limber when dry. As soon as no shining spots appear when held against the light, the things will be clapped enough. Nothing must be clapped single, for fear of fraying and tearing. It will spoil the colour also if the clapping is done near the fire, except in frosty weather, when the cold will render this necessary.

Ironing and getting up.—In the case of plain articles, when they have been ascertained to be sufficiently clapped, let the hands be washed and very thoroughly dried, when the articles must be pulled in two directions, and laid double on the ironing board, as evenly and smoothly as possible. Another article is to be doubled in the same manner and laid over the first, and then a third, till about six have been so laid. The first, which will be the driest, may then be ironed with a box iron. The articles should be nearly dry, but not quite, as they will iron more smoothly when slightly damp.

Fine plain muslin articles ought to be ironed on a clean soft woollen cloth; but in the case of thicker and coarser cottons, they ought to be first ironed on a damp cloth, and finished by ironing them on the wrong sides upon the ironing cloth.

In the case of edged caps, when they have been ascertained to be sufficiently clapped—and this is as easily done as in plain articles—a board ought to be procured with cloth nailed round the ends; then pulling out the cap in two directions, and holding by the edging with very dry hands, pin it down very straight to the cloth on the ends of the board, taking care to put the pins into the edging rather than in the body of the cap, which would leave holes that would not easily come out again. In this way, three or four articles may be pinned down on the board according as it may be of size to receive them. The articles must remain pinned on the board till they are quite dry, when the pins may be taken out and the edging picked out with very dry hands, by holding the body of the cap quite tight. Every little pucker and fold must thus be picked out on the board by going twice over the edging.

The articles thus picked out, must be ironed on a damp cloth with an iron not too hot.

In the case of lawns and cambricks, after washing and rinsing them in the same manner as fine muslins, let them be dipped into very thin starch, squeezed out very hard, and wiped very hard with a dry cloth. They must also be clapped with great care, as they are apt to slit. When they have been folded up after clapping, let them be put into a clean pan, taking great care not to let them touch any wet, which, both in these articles and in muslins, leaves a thick sort of appearance instead of the fine semi-transparent look on which their beauty depends.

Lawns and cambricks ought, like thick muslins, to be ironed on the wrong side on a damp cloth, with an iron not too hot.

[An old Man and Girl of the Canton of Soleure, Switzerland.]

LIVING COSTUMES.

The little canton of Soleure is wedged in between the territories of Berne, Zurich and Basle: its greatest breadth is thirty miles, and its length thirty-six: it has an area of two hundred and seventy-five square miles, and a population of 54,300 persons. The population of the capital of this country, is only 3,600, yet this small spot is independent and in its principal city you will find curious monuments, an interesting arsenal, a penitentiary, a well-regulated college, libraries rich in rare books, and a great many capable and intelligent men. The capital of this canton bears the name of Soleure: it stands at the foot of mount Jura, and is divided by the river Aar, into two parts; it is fortified with walls and bastions. The environs are pleasant and picturesque. This city is very ancient and many Roman antiquities have been found in it.

The canton of Soleure embraces a part of the chain of the Jura, and on the river Aar the country is flat, well-wooded, and contains abundance of fruit-trees, fertile fields and prairies, which are kept moist by the Aar, and by a number of other streams.

The population of the canton of Soleure is almost entirely composed of Catholicks: the clergy possess great influence and to their sacerdotal functions add that of instruction. In the city of Soleure there is one ecclesiastick, for about every eighty inhabitants. Most of the population are engaged in agricultural pursuits: there are some cotton factories, but the principal article of trade is the exportation of horses, cattle, firewood, cheese, and the famous kirch-wasser.

[From the Georgetown Metropolitan.]

INDIAN WRITTEN LANGUAGE.

The following very interesting incident of Indian life, was written by Governour Cass, our present minister to France, while on one of those numerous missions to the aboriginal tribes, in which his integrity, sagacity, and deep knowledge of the Indian character, achieved so many beneficial results for the United States, as well as for the outcast children of the forest themselves, by the amicable relations which he established, and the treaties which he made between them and our government; and is published now by his kind permission. It was the practice of Governour Cass, while on these expeditions, to record minutely all the interesting particulars, and the facts respecting the history, habits, and characters of the Indian tribes, which practical acquaintance brought under the knowledge of a sagacious and inquiring mind. By such a man, what valuable materials for an authentick history of that remarkable and perishing race, will not these documents present. We hope from time to time, to have the high gratification of presenting further extracts to the publick.

An incident occurred, during a recent tour to the Northwest, so rare in itself, and which so clearly shows the facility with which communications may be opened between savage nations, without the intervention of letters, that I have thought it would be interesting to communicate to you.

The Chippeways and Sioux are hereditary enemies, and Charlevoix says they were at war when the French first reached the Mississippi. I endeavoured when among them, to learn the cause which first excited them to war, and the time when it commenced, but they can give no rational account of either. An intelligent Chippeway chief informed me, that the disputed boundary between them, was a subject of little importance, and the question respecting it, would be easily adjusted. He appeared to think they fought, because their fathers fought before them.

This war has been waged with various success, and in its prosecution, instances of courage and self-devotion have occurred, within a few years, that would not have disgraced the pages of Grecian, or of Roman history. Some years since, mutually weary of hostilities, the chiefs of both nations met and agreed upon a truce. But the Sioux, disregarding the solemn contract which they had formed, and actuated by some sudden impulse, attacked the Chippeways, and murdered a number of them. The old Chippeway chief, who descended the Mississippi with us, was present on this occasion, and owed his life to the intrepidity and generous self-devotion of a Sioux chief. This man entreated, remonstrated, and threatened. He urged his countrymen, by every motive, to abstain from any violation of their faith, and when he found his remonstrances useless, he attached himself to the Chippeway chief, and avowed his determination of saving or perishing with him. Awed by his intrepidity, the Sioux finally agreed that he should ransom the Chippeway, and he accordingly applied to this object all the property which he owned. He then accompanied the Chippeway on his journey, until he considered him safe from any party of the Sioux who might be disposed to follow him.

The Sioux are much more numerous than the Chippeways, and would have overpowered them long since, had the operations of the former been consentaneous; but they are divided into so many different bands, and are scattered over such an extensive country, that their efforts have no combination.

Believing it equally inconsistent with humanity and sound policy, that these border contests should be suffered to continue, satisfied that government would approve of any plan of pacification which might be adopted, and feeling that the Indians have a full portion of moral and physical evils, without adding to them the calamities of war, which had no definite object, and no probable termination, on our arrival at Sandy lake, I proposed to the Chippeway chiefs, that a deputation should accompany us to the mouth of the St. Peter's, with a view to establish a permanent peace between them and the Sioux. The Chippeways readily acceded to this proposition, and ten of their principal men descended the Mississippi with us.

The computed distance from Sandy lake to the St. Peter's, is six hundred miles; and a considerable portion of the country has been the theatre of hostile enterprises. The Mississippi here traverses the immense plains which extend to the Missouri, and which present to the eye a spectacle at once interesting and fatiguing. Scarcely the slightest variation in the surface occurs, and they are entirely destitute of timber. In this debateable land the game is very abundant. Buffaloes, elks, and deers, range unharmed, and unconscious of harm. The mutual

hostilities of the Chippeways and Sioux, render it dangerous for either, except in strong parties, to visit this portion of the country. The consequence has been a great increase of all the animals whose flesh is used for food, or whose fur is valuable for market. We found herds of buffalo quietly feeding on the plains. There is little difficulty in approaching sufficiently near to kill them. With an eagerness which is natural to all hunters, and with an improvidence which always attend those excursions, the animals are frequently killed without any necessity, and no other part is then preserved but the tongue.

There is something extremely novel and interesting in this pursuit. The immense plain, extending as far as the eye can reach, is spotted here and there with droves of buffaloes. The distance, and the absence of known objects, render it difficult to estimate the number or the size of these animals. The hunters approach them cautiously, keeping to the leeward, lest the buffaloes, whose scent is very acute, should observe them. The moment a gun is fired, the buffaloes scatter, and scour the field in every direction. Unwieldy as they appear, they move with celerity. It is difficult to divert them from their course, and the attempt is always hazardous. One of the party barely escaped with his life from this act of temerity. The hunters who are stationed on different parts of the plain, fire as the animals pass them. The repeated discharge of guns in every direction, and the shouts of those who are engaged in the pursuit, and the sight of the buffaloes at full speed on every side, give an animation to the scene which is rarely equalled.

The droves which we saw were comparatively small. Some of the party, whom we found at St. Peter's, and who had arrived at that place by land from the Council Bluffs, estimated one of the droves which they saw to contain two thousand buffaloes.

As we neared this part of the country, we found our Chippeway friends cautious and observing. The flag of the United States was flying over all our canoes, and, thanks to the character which our country acquired by the events of the last war, I found, in our progress through the whole Indian country, after we had once left the great line of communication, that this flag was a passport which rendered our journey safe. We consequently felt assured that no wandering party of the Sioux would attack even their enemies while under our protection. But the Chippeways could not appreciate the influence the American flag would have upon other nations, nor is it probable they estimated with much accuracy the motives which induced us to assume the character of an umpire. The Chippeways landed occasionally to examine whether any of the Sioux had recently visited that quarter. In one of these excursion, a Chippeway found in a conspicuous place a piece of birch bark, made flat by being fastened between two sticks at each end, and about eighteen inches long by two broad. This bark contained the answer of the Sioux nation to the proposition which had been made by the Chippeways for a termination of hostilities. So sanguinary had been the contest betwen these tribes, that no personal communication could take place. Neither the sanctity of office, nor the importance of the message, could protect the ambassador of either party from the vengeance of the other. Some time preceding, the Chippeways, anxious for the restoration of peace, had sent a number of their young men into these plains with a similar piece of bark, upon which they had represented their desire.

This bark had been left hanging to a tree, in an exposed situation, and had been found and taken away by a party of Sioux.

The proposition had been examined and discussed in the Sioux villages, and the bark which was found contained their answer. The Chippeway who had prepared the bark for his tribe was with us; and on our arrival at St. Peter's, finding that it was lost, I requested him to make another. He did so, and produced what I have no doubt was a perfect *fac simile*. The Chippeways explained to us with great facility, the intention of the Sioux, and apparently with as much readiness as if some common character had been established between them.

The junction of the St. Peter's with the Mississippi, where the principal part of the Sioux reside, was represented, and also the American fort, with a sentinel on duty, and the flag flying. The principal Sioux chief was named the Six, alluding, I believe, to the band of villages under his influence. To show that he was not present at the deliberation upon the subject of peace, he was represented upon a smaller piece of bark, which was attached to the other. To identify him, he was drawn up with six heads and a large medal. Another Sioux chief stood in the foreground, holding a pipe in his right hand, and his weapons in his left. Even we could not misunderstand that, like our own eagle with the olive-branch and arrows, he was desirous of peace, but prepared for war.

The Sioux party contained fifty-nine warriours, and this number was indicated by fifty-nine guns, which were drawn upon one corner of the bark. The only subject which occasioned any difficulty in the interpretation of the Chippeways, was owing to an incident of which they were ignorant.

The encampment of our troops had been removed from the low grounds upon the St. Peter's, to a high hill upon the Mississippi: two forts were therefore drawn upon the bark, and the solution of this enigma could not be discovered until our arrival at St. Peter's. The effect of the discovery of this bark upon the minds of the Chippeways was visible and immediate. Their doubts and apprehensions appeared to be removed, and during the residue of the journey, their conduct and feelings where completely changed.

The Chippeway bark was drawn in the same general manner, and Sandy lake, the principal place of their residence, was represented with much accuracy. To remove any doubts respecting it, a view was given of the old northwestern establishment, situated upon the shore, and now in the possession of the American Fur Company. No proportion was preserved in their attempt at delineation. One mile of the Mississippi, including the mouth of the St. Peter's, occupied as much space as the whole distance to Sandy lake, nor was there any thing to show that one part was nearer to the spectator than another; yet the object of each party was completely obtained. Speaking languages radically different from each other—for the Sioux constitute one of the three general divisions, into which the early French writers have arranged the aborigines

of our country, while the Chippeways are a branch of what they call the Algonquins—and without any conventional character established between them, these savages had thus opened a communication upon the most important subject which could occupy their attention. Propositions leading to a peace were made and accepted, and the simplicity of the mode could only be equalled by the distinctness of the representations, and by the ease with which they were understood.

An incident like this, of rare occurrence at the present day, and throwing some light upon the mode of communication before the invention of letters, excited in us all, as may be expected, the greatest interest. It is only necessary to add, that on our arrival at St. Peter's, we found that Col. Leavenworth had been as attentive and indefatigable upon this subject, as upon every other which fell within the sphere of his command.

During the preceding winter, he visited a tribe of the Chippeways upon this pacifick mission, and had, with the aid of the agent, Mr. Taliferro, prepared the minds of both tribes for a permanent peace. The Sioux and Chippeways met in council, at which we all attended, and smoked the pipe of peace together. They then, as they say in their figurative language, buried the tomahawk so deep that it could never be dug up again, and our Chippeway friends departed well satisfied with the results of the mission.

We discovered a remarkable coincidence, as well in the sound as in the application, between a word in the Sioux language and one in our own. The circumstance is singular, and I deem it worthy of notice. The Sioux call the falls of St. Anthony, Ha, Ha, and the pronunciation is in every respect similar to the same word in the English language. I could not learn that this word was used for any other purpose, and I believe it is confined in its application to that place alone.

The traveller, in ascending the Mississippi, turns a projecting point, and these falls suddenly appear before him at a short distance. Every man, savage or civilized, must be struck with the magnificent spectacle which immediately opens to his view. There is an assemblage of objects, which, added to the solitary grandeur of the scene, to the height of the cataract, and to the eternal roar of its waters, inspire the spectator with awe and admiration.

In his anecdotes of painting, it is stated by Horace Walpole, that "on the intervention of fosses for boundaries, the common people called them Ha, Ha, to express their surprise at finding a sudden and unperceived check to their walk." I believe the name is yet used in this manner in England.

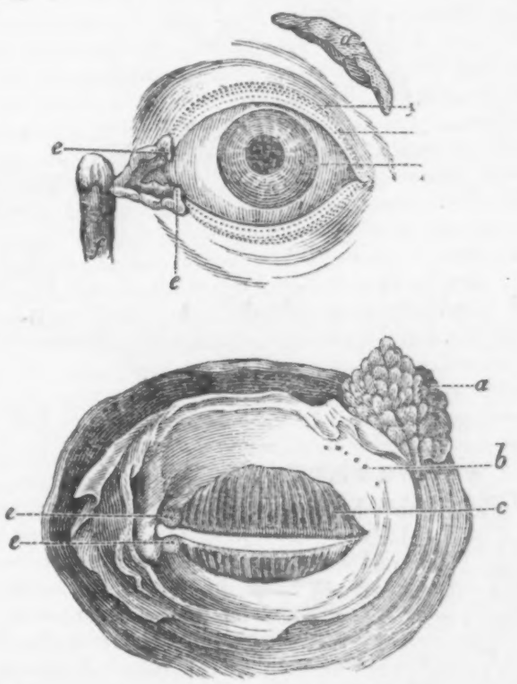
It is certainly not a little remarkable that the same word should be applied by one of the most civilized and by one of the most barbarous people, to objects, which, although not the same, were yet calculated to excite the admiration of the observer.

Nothing can show more clearly how fallacious are those deductions of comparative etymology which are founded upon a few words, carefully gleaned, here and there, from languages having no common origin, and which are used by people having neither connexion nor intercourse. The common descent of two nations can never be traced by the accidental consonance of a few syllables or words, and the attempt must lead us into the regions of fancy.

The Sioux language is probably one of the most barren which is spoken by any of our aboriginal tribes. Col. Leavenworth, who made considerable proficiency in it, calculated, I believe, that the number of words did not exceed one thousand. They use more gestures in their conversation than any Indians I have seen, and this is a necessary result of the poverty of their language.

THE EYELIDS.*

THERE is a small gristle placed like pasteboard in the edge of each eyelid, which retains them in form, and keeps them nicely fitted to the eye. Behind this gristle there are a number of glands that prepare an oily fluid, which passes through certain holes at the edge of each eyelid, for keeping them from sticking to each other, and preventing the tears from running upon the cheek, as water does not pass readily over a vessel, the edge of which is smeared with oil.

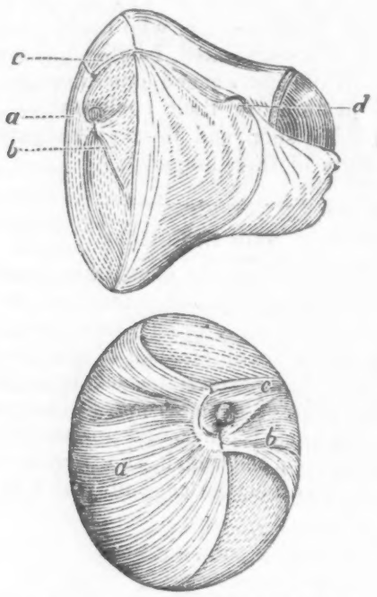


a The gland which prepares the tears. *b* The opening by which they are poured out on the inside of the eye. *c* The glands which prepare the oily fluid that prevents the tears from running on the cheek. *d* The orifice of the lachrymal passage. *e* The points which take up the tears from the eye, and by which they are conveyed to the nose.

The gland for preparing the tears is of the size of an almond, and sunk into a depression of the bone at the upper part of the cheek. The fluid which it prepares passes to the inside of the upper eyelid by seven orifices; it is prevented from running on the cheek by the oily fluid from the small glands, and is collected at the inner corner of the eye from which unless too abundant it is conveyed into the tear-bag *f*, through two little pipes, the open-

* "The Structure of the Eye with Reference to Natural Theology, by W. C. Wallace, Oculist to the New York Institution for the Blind."

ings of which are situated at the inner corner of each eyelid; from the tear-bag *f*, it passes into the nose where it is evaporated.

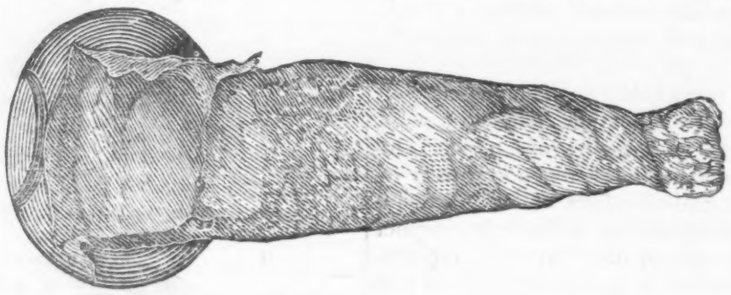


[Muscles and Third Eyelid of Owl.]

a The oblique muscle, through the edge of which the pyramidal muscle *b* plays over the hook *d*.

To supply the necessities of birds, which are observed during their rapid movements among branches of trees, they have a third eyelid, which, when drawn over the eye, is an effectual protection of the organ by its toughness; and by its partial transparency, vision is not altogether obscured. It is moved by two flat muscles, which, having no room elsewhere, are closely applied to the back of the eye. One of the edges of the broader muscle, resembles a string case, through which passes the tendon or cord of the other muscle, which is fixed to the membrane. In the owl there is a small hook projecting from the circle of bone which surrounds the clear part of the eye; when the muscles act they pull the cord over this hook and draw the membrane across the eye.

The eyes of quadrupeds are also furnished with a third eyelid called the haw, on the internal surface of which there is a gland that prepares a gummy fluid, which the animal sweeps across the eye to keep it moist and transparent. In the rhinoceros, this gland is of enormous size when compared with other animals. This animal is said to plough the ground with its horn, and to throw earth and dust on its enemies; the eye is consequently much exposed, and requires unusual protection.



[Eye of Rhinoceros.]

A STORY OF LAKE ERIE.

An Indian woman and her child, who was about five years old, were travelling along the beach to a camp a few miles distant. The boy observed some wild grapes growing upon the top of the bank, and expressed such a desire to obtain them, that his mother, seeing a ravine at a little distance, by which she thought she could gain the edge of the precipice, resolved to gratify him. Having desired him to remain where he was, she ascended the steep, and was allured much farther into the woods than she at first intended. In the meantime, the wind began to blow vehemently, but the boy wandered carelessly along the beach, seeking for shells, till the rapid rise of the water rendered it impossible for him to return to the spot where he had been left by his mother. He immediately began to cry aloud, and she being on her return, heard him, but instead of descending the ravine, hastened to the edge of the precipice, from the bottom of which the noise seemed to proceed. On looking down, she beheld her son struggling with the waves, and vainly endeavouring to climb up the bank, which was fifty feet, perpendicular height, and very slippery. There being no possibility of rendering him assistance, she was on the point of throwing herself down the steep, when she saw him catch hold of a tree that had fallen into the lake, and mount one of its most projecting branches. He sat astride upon this, almost beyond the reach of the surges, while she continued watching him in an agony of grief, hesitating whether she should endeavour to find her way to camp, and procure assistance, or remain near her boy. However, evening was about to close, and, as she could not proceed through the woods in the dark, she resolved at least to wait until the moon rose. She sat on the top of the precipice a whole hour, and, during that time, occasionally ascertained that her son was alive, by hearing his cries amidst the roaring of the waves; but when the moon appeared he was not to be seen. She now felt convinced that he was drowned, and giving way to utter despair, threw herself on the turf. Presently she heard a feeble voice cry, (in Indian,) "Mama, I'm here, come and help me." She started up, and saw her boy scrambling up the edge of the bank, she sprang forward to catch his hand, but the ground by which he held, giving way, he was precipitated into the lake, and perished among the rushing billows!

Oysters.—The liquor of oysters contains innumerable embryos, with transparent shell—one hundred and twenty to the inch; and also other animalculæ, as three kinds of worms, etc. The sea-star, men, cockles, and muscles, are their enemies.

DESTRUCTION OF THE MORAVIAN TOWNS, ON THE MUSKINGUM RIVER IN OHIO, IN 1781.

As early as the middle of the fifteenth century, a sect of harmless and peaceable Christians sprung up in Moravia, in the dominions of Austria, amid the general fermentation, which seems so remarkably to have seized the publick mind in Europe, about that time. These Christians, under the title of Moravians, or United Brethren, established themselves about the middle of the sixteenth century in Pennsylvania, at Freedenshutten, on Big Beaver, Wyolussing, and Sheshequon, on the Susquehannah. Here, these exemplary fathers devoted themselves to Christianizing and civilizing the Indians, with signal success. They exerted their best energies to keep down the spirit of war and devastation, so prevalent in a border country, by teaching, that "it must be displeasing to the Great Being, who made men not to destroy men, but to *love and assist one another*." To carry these beneficent views more effectually into practice with the native tribes of our forests, these true missionaries of the Christian cross removed in 1769 into the heart of the northwestern wilderness, and established the towns of Gnadenhutten, Salem, and Shoebrun, on the banks of the Muskingum.

In this perilous position, the pious and philanthropick labours of these devoted servants of humanity were blessed with prosperity; and they gathered a flock of three or four hundred Christians out of the Ishmaelites of our wilderness. The arts of peaceful and civilized life were sown, and were producing much fruit worthy of the good seed; the red man was becoming reclaimed from his ferocity, and the standard of Christian civilization was successfully set up in the wigwams of the savage. But a blight was coming over this goodly prospect; war, with more than its usual fury, burst out again between the Indian and his white neighbours. The towns of the Moravians with their proselytes occupied the middle parties; exposed, as Gibbon remarks, with his usual point, to the fire of both parties. They were situated about sixty miles from the villages of hostile Indians, and "not much farther than the whites; hence they were called the halfway houses of the warriours." Both the parties at war passed by or through the Moravian towns, and committed whatever violations of neutrality their resentments or their caprices dictated. Nor were the Moravians exempt from the suspicions of both parties, for being auxiliaries to their enemies. Often indeed had neutrality been violated in favour of the whites, by communicating intelligence of schemes of Indian incursion. The attack on Wheeling Fort had been distinctly announced by the friendly Moravians; and might not similar intelligence have been conveyed to the Indians? It would have been but fair, between the belligerants, and quite consistent with the Moravian abhorrence of war from all quarters.

This condition of irritation and suspicion, continued with more or less aggravation, through the Indian war until the fall of 1781. At this time the hostility of their unconverted countrymen broke out against the praying Indians, as the Moravians were expressively called; their towns and their property were destroyed, and the missionaries were taken prisoners to Detroit. After some confinement, the British commandant became satisfied of the innocence of the pious labourers, and dismissed them to their beloved flock, for whose religious interests they braved such dangers and suffered such privations, as the pure spirit of Christian philanthropy can alone prepare the soul to endure. The Indians were left to shift for themselves in the Sandusky plains, where most of their horses perished from famine. This, too, when the labour of the Christian Indian had raised abundant corn, which they had not been allowed to gather. But the misfortunes of the band of Christian Indians, who seem so unhappily to have been before their time, and out of place, for the enjoyment of their peaceful doctrines, were also destined to come from men, bearing the name of Christians as well as themselves, and professing the same mild and merciful worship of our heavenly Father.

About the latter end of this year, the militia of the Pennsylvania frontier, (yet, however, in dispute with Virginia,) came to a determination of breaking up the Moravian towns. For this purpose, a party of men, under the command of Col. David Williamson, proceeded to the Indian villages, for the purpose of securing these suspected enemies. They, however, found the towns almost deserted; the few prisoners whom they did take, were delivered in safety to the commandant of Fort Pitt.

After a confinement of some time, the prisoners were released; much to the displeasure of the inhabitants, infuriated as they had almost necessarily become, by the horrible barbarities of Indian warfare.

In March, 1782, the militia of the same portion of the country resolved upon a second expedition against the Moravian towns. Col. Williamson again commanded the men, if command can be applicable to such insubordinate and lawless movements. They amounted to eighty or ninety persons, collected without any publick *authority*; but solely moved by the private determination of the party, and so far the character of our country is saved from some portion of the flagrant enormities which were perpetrated by this self-appointed military body. The object avowed was, to remove the Moravian Indians peaceably, but certainly to destroy their houses and their crops.

In this way they wanted to break up the halfway asylums for the depredators on the frontier, if they did not, as was perhaps unjustly suspected, originate in these villages. The white party took up its line of march from the Mingo bottom, on the west side of the Ohio; and on the second night thereafter, they encamped within one mile of the town of Gnadenhutten, the middle town of the Moravians, which extended on both sides of the Muskingum. When the party had reached the river, it was divided into equal portions, one of which was ordered to cross about a mile above the town, and to take possession of the western part of it; while the residue of the force was separated into three divisions, one to march above, another below, and the third opposite to the middle of the town, with orders to occupy it. The detachment intended for the western attack, on reaching the river bank, found no means of conveyance except a large trough designed for holding sugar-water, or maple-sap; and even that was on the opposite side of the river. The ice was floating in the river, and its waters high, but a young man of the name of Slaughter, Cassius-like, buffeted the flood and safely brought the trough over; still it was capa-

ble of holding but two persons. It was then concluded to place the arms and ammunition of the men in this vehicle, while they should swim over. Thus, at the very outset of the attack, were the invaders placed at the mercy of the Moravians, had they intended hostilities even in defence of their houses and their families. When about sixteen men had effected the passage of the river; two of the sentinels, who had been posted in advance, discovered a Moravian Indian by the name of Shahosh; they shot and tomahawked him. The eastern detachment was then directed to commence the attack, in order to anticipate the alarm which must be produced by the firing: it was done. The detachment on the west proceeded to the town on that side, where they found the Indians in a cornfield, gathering the crop of corn, which had been left on the stalk, when they had been hurried off by their own countrymen in the preceding fall. This Indian party had obtained leave from the Delawares, to return to their old town, for the purpose of getting a supply of provisions to keep their people from starving. Could the situation of a people well be more deplorable than this? Permitted by the mercy of the Indians to come back and collect the fruits of their labour, for the support of their suffering people, and at their own towns to meet a hostile party of the whites, who treated them with a ferocity alone worthy of that corrupt religion which the Moravian Indians had in abhorrence abandoned.

"On the arrival of the white men at the town, they proposed peace and good will to the Moravians, and informed them, that they had come to take them to Fort Pitt, for their safety. The Indians surrendered, delivered up their arms, and appeared highly delighted with the prospect of their removal; they then began with all speed to prepare victuals to subsist the white men and themselves on the journey."

After this insidious capture, another party was despatched to Salem, to bring in the Indians there, who were also gathering corn. They too were successful. The Indians were all brought from Salem, to Gnadenhutten. Here they were secured as prisoners, and a council of officers was held upon their fate. This tribunal would not determine the matter, but with unmanly and unofficer-like dereliction from their duty, referred it to the men. Upon this, the private soldiers were drawn up in a line, and the awful question was accordingly submitted to them, by their own colonel, "whether the Moravian Indians should be taken prisoners to Pittsburgh, or *put to death*."

Those who were in favour of saving their lives, were directed to step out of the ranks; upon this, sixteen, some say eighteen, were only found in favour of mercy. The prisoners were then told to prepare for death. This cruel result seems to have been foreseen by the deceived Indians, when they were once confined in the guard-house. They began their devotions by singing hymns, praying, and exhorting each other to place a firm reliance in the mercy of the Saviour of men. When their fate was announced to them, these devoted people embraced, kissed, and bedewed each other's faces and bosoms, with their mutual tears, asked pardon of the brothers and sisters for any offence they might have given them through life. Thus at peace with their God and each other, on being asked by those who were impatient for the slaughter, they answered, they had commended their souls to God, and were ready. The particulars of this atrocious butchery, in cold blood, without form of trial, or shadow of publick authority, are too horrible, too bloody for detail. Suffice it to say, that the two houses in which the prisoners were confined, were made slaughter-pens for these betrayed Indians, who were, according to the strongest grounds of presumption, the suspicions of *both* parties, innocent of white men's blood. There was no exception of age or sex in this massacre, perpetrated by misnamed Christians; all perished "at one fell swoop" of these degenerate Americans. Ninety-six out of one hundred and fifty of these people, fatally confiding in the faith of their murderers, perished in this worse than Indian massacre. Worse because committed against all the lights of religion, law, and civilization.

Of the number massacred, "sixty-two were grown persons, one third of whom were *females*, and the remaining thirty-four were *children*." The houses and the remains of the dead were burned together.

Gladly does the author pass from an enormity, which makes him blush to own its authors as fellow-countrymen, to some of the circumstances which may, in some slight degree, palliate, though nothing can justify, a transaction so utterly at war with justice and mercy, and the professed principles of the American people. In the first place, "very few of our men imbrued their hands in the blood of the Moravians, even those who had not voted for saving their lives, retired from the scene of slaughter with horrour and disgust." Still they were accessaries to the foul massacre by their dastardly inactivity. In such momentous cases of high moral principle, he who is not for it, is against it. There is no medium, no middle ground, between crime and innocence, in such extremities; then, backwardness is the highest guilt.

Next, the country in which this expedition originated was a debateable land, claimed by Pennsylvania and Virginia, and had become the theatre of many disorders. The reins of government, never held very tight on a wild frontier, were more than usually lax in this territory. The boundary between the two states, although agreed upon in 1779 by Pennsylvania, and 1780 by Virginia, was not finally extended until 1785, when the counties in question were found to be comprehended in the jurisdiction of the former state. To this slight extenuation of the outrage must be added the fact, that there were circumstances calculated to implicate the Moravians in the exasperating and heart-rending ravages of a savage enemy. These had filled the heart of the soldiery with bitterness many of them were men who had recently lost relations by the hands of the savages, several of the latter found articles in the Moravians, which had been plundered from their own houses or those of their relatives. One man, it is said, found the clothes of his wife and children, who had been murdered by the Indians but a few days before. They were still bloody; yet there was no unequivocal evidence that these people had any direct agency in the war. Whatever of our property was found with them had been left by the warriours in exchange for the provisions which they took with them.

One conclusive proof of the innocence of the Moravians is found in the fact, that "when attacked

by our people, although they might have defended themselves, they did *not*. They never fired a single shot. They were prisoners and had been promised protection, and every dictate of justice and humanity required that their lives should be spared."

No doubt the frontier was festering under the wounds of Indian barbarity; and that Indians were not thought entitled to the mercy they had never shown to others. Still this is but slight extenuation admitting at once the truth of a transaction which *brands its perpetrators with indelible infamy.*

Mann Butler.

POPULAR MEDICAL OBSERVATIONS.

A PAGE of *practical remarks* on purgative medicines will not, perhaps, be without its use to the readers of this magazine.

Purgatives are divisible, according to their mode of action, into three classes: first, those which act chiefly on the *upper part* of the bowels; second, those which act chiefly on the *lower part* of the bowels; and third, those which act on the *whole* intestinal canal. The first are especially useful in correcting disordered states of the stomach and liver; such are the preparations of mercury, that is, *calomel* and *blue-pill*, *rhubarb* and *jalap*. The second act especially on the *lower part* of the bowels; such are aloes. The third act on the *whole* extent of the bowels; such are castor oil, and the various salines, to wit, Epsom salts, tartrate of soda, &c.

Now it will require no great stretch of sagacity to perceive, that it is important to know which of these classes should be preferred; and that, while some purgative may be strongly called for, one will be much more likely to be beneficial that another; indeed, that while one would essentially relieve the overloaded, or the lethargick, or the irritable state of the system, another would only aggravate these complaints.

Aloetick purgatives have long been the prime favourites with the mass of the people, and a large proportion of the quack pills have aloes for their principal ingredient. This has arisen from the fact that aloes act only, or almost only, on the lower part of the bowels; and, therefore, there is less likely to be subsequent costiveness, than there is after the aperients, which empty the whole intestinal canal. But aloetick purgatives are apt to *irritate* the lower part of the bowels; if continued even for a short time, they are apt to cause *piles*, &c., and hardly ever afford that decided relief to the system which is given by the other kinds of purgatives. On these accounts we think that aloetick purgatives do not deserve the extensive popularity they have acquired.

Every body knows that the great cause of our bodily ailments is repletion—that is eating a larger quantity of food than is wanted to supply the necessities of the system. The mass of the people are more sedentary in their habits than they ever were before. A larger number is engaged in manufactories, &c., where little or no active bodily exercise is enjoyed; and while they are thus deprived of the benefits of exercise, they are also deprived of the health-fraught influences of a pure and undulterated atmosphere; and, although these considerations point out the necessity of attention to diet, that the plainness of food may in some degree counteract the evils resulting from so *artificial* a mode of life, our commercial relations are so much extended, that Eastern luxuries, spices and condiment spirits, and fermented liquors, are attainable by almost every inhabitant of our large towns. Thus it is the *stomach* that becomes the seat in which almost all modern ailments begin, and from which they, as it were *radiate* through the whole system; and, therefore, the remedies which act on the stomach and its adjacent and assistant organ, the liver, are the most likely to be beneficial to the system. It is for these reasons we think that those purgatives which act especially on the *upper part* of the bowels, are to be preferred, and to this class belong rhubarb and blue-pill. If an *occasional* purgative only is wanted, the "compound rhubarb pill" is, perhaps, the best preparation; and of this, ten grains may be taken, with or without one, two, or three grains of blue-pill. But if an aperient is to be taken *regularly*, the best way is to procure a piece of the root of Turkey rhubarb, and, breaking a portion off with the teeth, to chew it thoroughly, and not to swallow the woody part. The palate very soon becomes accustomed to the taste of rhubarb, and in a very short time it ceases to be nauseous. The *woody* part is *astringent*, and is, therefore, very apt to disorder the stomach, and to interfere with the operation of the purgative principle which rhubarb contains.

There are, however, many people who cannot take rhubarb in the way we have spoken of. It disturbs the functions of their stomachs, loading the tongue, and impairing the appetite, and in some it causes squeamishness or nausea for hours after taking it. Many such will find, that by taking a little of the powdered rhubarb in *milk*, the taste is in great measure covered, a not unpleasant bitter only remaining, and very often rhubarb, taken in this way will agree with the stomach, where, otherwise exhibited, it had produced nausea and stomach disturbance. The effect of rhubarb is often greatly increased by mixing it with an alkali, as *soda;* or an alkaline earth, as *magnesia* or *lime*. Five or ten grains of bi-carbonate of soda, or a scruple of carbonate of magnesia or a tablespoonful of lime water, with two tablespoonfuls of water may be added to the dose of rhubarb for this purpose.

The addition of Castile-soap to rhubarb when made into pills, answers the same end, although not quite so efficiently. Should the rhubarb produce pain or griping in the bowels, it will commonly be well to add some aromatick to it. Powdered ginger is perhaps the best. The proportion is half the quantity of aromatick to that which constitutes the the dose of rhubarb. Rhubarb is, beyond all doubt, the aperient, the use of which may be the longest persevered in with safety, or without risk; and it should never be lost sight of that it does agree, in some of the forms we have mentioned, with most people; and that, where it does agree, it *strengthens* instead of *weakens*, the stomach and the bowels; and this is an observation which is applicable to few others of the various medicines which act as aperients.

We have slightly mentioned the preparations of mercury, and especially blue-pill. It will be useful if we say a few words about this powerful drug. The action of mercury is usually thought to be only on

the liver and its secretions; in fact, it is generally conceived that if the bile is healthy, and if it is secreted in sufficient quantity, there can be no possible motive for conjoining blue-pill with an aperient. This is a narrow and a mistaken view of the action of mercury. It acts not only on the liver, but on the secreting glands, with which the whole track of the intestines is supplied; and, therefore, is as usefully added to the aperient where the abdominal secretions are deficient, or disordered, as it is where the mischief is only in the liver. But mercury is a medicine the exhibition of which must not be trifled with. Taken habitually, or frequently, and, as it often is, *unnecessarily*, it makes serious, although it may be *insidious*, inroads on the constitution: and should the individual be attacked with severe illness, as every one is daily liable to be from cold, &c., he will bear that illness worse, and it will be more likely to prove directly fatal, or to leave serious evils behind it, such as organick disease, (alteration in the structure of some organ or tissue,) than it otherwise would have been. Mercury should be rarely, most rarely, resorted to, unless under the advice of some medical man.

The saline purgatives are entitled to be classed next to those we have mentioned, because they likewise act on the *upper part* of the bowels. Salines, however, act on the *lower* as well as the *upper part* of the bowels; and they are, therefore, more debilitating than those we have mentioned, and more likely to be followed by costiveness. This class of purgatives is very much abused as to the dose that is taken, and the mode of taking it. Epsom salts (*sulphate of magnesia*) is that which is now in most general request. The use of Glauber's salts (*sulphate of soda*) is now deservedly abandoned; for these salts are more nauseous to the taste, and more drastick in their action. The dose of Epsom salts that is commonly taken is an ounce; and the mode of exhibition is to dissolve them in the smallest possible quantity of warm water. This is all wrong. The dose is excessive—is much greater than it need be; the quantity of water is much too small; and they debilitate very much more than they ought to do, irritate most unnecessarily the whole extent of the bowels, not to speak of the stomach; they disturb the system, and rob it of its powers. Now neither of these need be the case in taking salts. All the saline aperients ought to be dissolved in the largest possible quantity of water, in as much water, in fact, as the stomach will bear. When they are taken in this way, the irritation is applied equally to the whole of the intestinal glands, and that with the smallest needful amount of irritation; the disordered state of those glands is, therefore, more completely corrected, the system as little as possible disturbed, and the degree of debility produced incalculably lessened. Instead of taking an ounce of salts, a quarter, or even an eighth, or at the most not more than three eighths of an ounce will be requisite. If the stomach will bear the distension, this should be taken in a full half pint of cold or tepid water; and if, in half an hour after taking the dose, the stomach will allow a half pint of simple water, cold or tepid, to be taken, the action of the salts will be greatly facilitated, and their operation will be very much easier. If the action of the salts is attended with flatulence, the addition of from ten to twenty grains of bi-carbonate of soda to the dose will, in all probability, prevent the inconvenience on a subsequent occasion. We have very often found the sixteenth part of an ounce of salts to be active enough when taken in the way we have pointed out; and an eighth of an ounce may be said to be an average dose. If the stomach will allow the water to be cold, and if the dose is taken the first thing in the morning, and if no more than a sixteenth of an ounce is taken, the use of salts is seldom, if ever, followed by any debilitating consequences; indeed, in very many instances, it has been found to strengthen both the stomach and the system, and it may usually be continued for a few weeks, when purgatives are really wanted and when salines agree, with decided advantage. We ought to mention another marked superiority which this way of taking salts has over that in which they are usually taken, they are seldom followed by troublesome costiveness. Lest it should be thought that this way of taking salts must be particularly nauseous, we must say that such is by no means the case. When so largely diluted, salts lose a great deal of their intense bitterness, and are undoubtedly much less unpleasant than when a concentrated solution is taken.

BIOGRAPHY.

FRANCISCO PIZARRO.

Several Spanish writers have represented Francisco Pizarro as a nobleman by birth, while others, with greater appearance of probability, maintain, that he was the illegitimate son of Gonzalo Pizarro, an officer at Truxillo, a town in the province of Estremadura in Spain, who suffered him to be exposed as a foundling at the door of a church; but being discovered to be the father, he was compelled to take him under his own care; but he fulfilled the

duty of a parent very indifferently, giving him no education, employing him in the most servile offices, and in particular that of keeping his hogs.

At length young Pizarro ran away from the herd, and got on board a ship bound for the West Indies, where he so distinguished himself in the wars of Hispaniola and Cuba, that he obtained a commission; and at length sailed with Hojeda to the gulf of Darien, by whom he was left to govern, in his absence, a colony which he had settled there.

After this, he served under Nunez de Balboa, and having acquired a handsome fortune, settled at Panama, on its being first built, and seemed wholly disposed to a life of ease and enjoyment; from which, however, he was diverted by that thirst of riches which almost always attends, and increases with the possession of them.

In 1525, the adventurers over whom the enterprising disposition, and daring temper of Pizarro, had gained him considerable influence, sailed from Panama. Diego Almagro, a man or obscure origin, and Hernandez Lucque joined him in the command. After many difficulties, the Spaniards arrived at Peru, where they availed themselves of a civil war then raging in that country, and became the allies, and eventually the enslavers of Atabaliba, the reigning inca. This monarch and his court were invited by Pizarro to attend a friendly banquet; while here they were treacherously seized; and the monarch was made to purchase at an enormous price a temporary reprieve from a death which they had determined he should eventually undergo, and after extorting from him, it is said, enough gold and silver to fill a room in the castle of Caxamalca, with those metals as high as a common man could reach his hand; he was after a mock trial for a pretended conspiracy, condemned to be burnt, but was allowed to be first strangled as a reward for becoming a Christian. The news of Pizarro's success brought a considerable accession of strength from Europe to the invaders; and to consolidate his empire, Pizarro founded in 1535, the city of Lima, which he intended to be the capital of his possessions; but the discord between the chiefs of the expedition, which even a sense of their common danger could not suppress, now broke out into open violence, and in the struggle which ensued, Almagro, now seventy-five years old, was defeated, taken prisoner, and strangled by Ferdinand Pizarro, brother to the general. This catastrophe, which took place in 1537, was avenged four years afterward by Almagro's son, who organized a conspiracy against the murderers of his father, broke into the palace at Lima, and after a severe fight succeeded in despatching Pizarro. This happened in June, 1541. Pizarro, although cruel and bloodthirsty, undoubtedly possessed great military and political talent, although the following anecdote would show that his early education was neglected :—

Atabaliba was of a penetrating and curious disposition; he was extremely anxious in his inquiries respecting the customs, manners, and abilities of the Spaniards; that he might be the better able to deal with them, if he should be so happy as to obtain his liberty; but what most of all puzzled him, was their writing and reading; and he was for a long time utterly unable to discover whether these were natural or acquired gifts.

With a view to be satisfied in this particular, he asked one of the Spanish soldiers if he could write the name of God upon his thumbnail; and the soldier answering in the affirmative, he begged that he would do it. This inscription Atabaliba showed to several of the captains and soldiers, all of whom explained it; so that he began to entertain an opinion that reading and writing were natural to them; when unfortunately, Francisco Pizarro falling in his way, he produced his nail, asking him the sense of the inscription; but Pizarro, who could neither write nor read, blushed and turned from him without resolving the question. From this, the inca inferred that these accomplishments were the effect of study; and entertained a very low opinion of the general, whose origin he thought must needs have been very mean, since he was exceeded in knowledge by the poorest of his followers.

USEFUL ARTS.

ENAMELLING.

Enamelling is the art of variegating with colours laid upon or into another body; also, a mode of painting, with vitrified colours, on gold, silver, copper, &c., and of melting these at the fire, or of making curious works in them at a lamp. This art is of so great antiquity, as to render it difficult or impossible to trace it to its origin. It was evidently practised by the Egyptians, from the remains that have been observed on the ornamented envelopes of mummies. From Egypt it passed into Greece, and afterward into Rome and its provinces, whence it was probably introduced into Great Britain, as various Roman antiquities have been dug up in different parts of the island, particularly in the Barrows, in which enamels have formed portions of the ornaments. The gold cup given by King John to the corporation of Lynn, in Norfolk, proves that the art was known among the Normans as the sides of the cup are embellished with various figures, whose garments are partly composed of coloured enamels. Enamels are vitrifiable substances, and are usually arranged into three classes; namely, the transparent, the semi-transparent, and opaque. The basis of all kinds of enamel is a perfectly transparent and fusible glass, which is rendered either semi-transparent or opaque, by the admixture of metallick oxides. The art of colouring glass seems to be of nearly the same antiquity as the invention of making it; which is proved, not only from written documents, but likewise by the variously-coloured glass corals, with which several of the Egyptian mummies are decorated.

White enamels are composed by melting the oxyde of tin with glass, and adding a small quantity of manganese, to increase the brilliancy of the colour. The addition of the oxyde of lead, or antimony, produces a yellow enamel; but a more beautiful yellow may be obtained from the oxyde of silver. Reds are formed by an intermixture of the oxydes of gold and iron, that composed of the former being the most beautiful and permanent. Greens, violets, and blues are formed from the oxydes of copper, cobalt, and iron; and these, when intermixed in different proportions, afford a great variety of intermediate colours. Some-

times the oxydes are mixed before they are united to the vitreous basis. All the colours may be produced by the metallick oxydes.

The principal quality of good enamel, and that which renders it fit for being applied on baked earthenware, or on metals, is, the facility with which it acquires lustre by a moderate heat, or cherry-red heat, more or less, according to the nature of the enamel, without entering into complete fusion. Enamels applied to earthenware and metals possess this quality. Enamels are executed upon the surface of copper and other metals, by a method similar to painting. Enamelling on plates of metal, and painting with vitrified colours on glass, are practised with great success.

One of the most curious and useful branches of this art consists in the manufacture of watchdials. The following account gives the process employed at the present in the best manufactories in Europe and in this country :—

"The dial plates of clocks and watches are made in a variety of ways. In general, they are composed of enamel upon a single plate of copper, unless they are more than a foot in diameter: larger ones are made in separate pieces, which are afterward joined together; or they are made of glass, placed upon a white ground. Some dial plates are made of silver, gold, and silvered or gilt brass.

"The enamelled dial plates are formed of a thin plate of copper, enamelled upon both sides, and having hours and minutes painted upon the ground. To make one of these dial plates, a thin plate of copper, of the requisite size, is taken, and hammered upon a slightly concave anvil of hard wood, with a convex-headed hammer, which speedily reduces it to the proper convexity: a hole is then made in the middle, which is enlarged with a tool put into it from the concave side, in order to form a ridge round the hole on the convex side, to retain the enamel when in a melted state. The copper plate is then placed upon the platine of the works, fitted to it by passing a tool through the centre holes of each, and being kept in its place by a vice, the holes for the screws by which the dial plate is to be fastened to the rest of the works, and that by which the key is to be introduced, are made; which last is to have a ridge round it, for the same purpose as that round the central hole. Copper wires are then forced into the holes by which it is to be attached to the works, and cut to the proper length, after which they are soldered. The plate is cut of such a size, that the edge may be hammered up to form a similar ridge round the whole face.

"The copper plate being thus manufactured, it is cleansed, by being left a short time in water sharpened with a little aquafortis, until the surface is perfectly clean; it is then dipped in common water, and brushed with a brush of brass wires.

"The enamel used ought to be very white: it is imported and sold by the ironmongers in flat cakes. The cakes are broken in a hardened steel mortar, and reduced, for the most part, into small pieces, about the size of small grains of sand, as nearly equal as possible. These are first washed in very clear water, and the milky liquor poured off, and left to settle, by which the finer powder is separated. The grains of enamel are then washed again several times with a clear water, and the settling of the water that is poured off, kept as before, for enamelling the under surfaces of the plate.

"The grains of enamel being thus well washed, they are put into a glass vessel, and aquafortis is poured on them, so as to float them about a quarter of an inch. The whole is stirred with a glass or spatula, and the acid left on the enamel for twelve hours, in order to dissolve away the metallick particles it has rubbed off the steel mortar, and which would foul the whiteness of the enamel when applied on the face of the plate. The nitrick acid is then poured off, and the enamel washed again with water, until all the acid is got rid of; after which it is again covered with clean water, and kept under it to preserve its cleanness and whiteness.

"Not only the convex face of the dial plate, or that on which the hours and minutes are to be painted, is enamelled, but also the concave face. This counter enamelling, as it is called, is necessary, lest when the enamel of the upper face is melted, the action of it on a plate, while hot, should change its curvature; upon which account both faces are enamelled at one and the same time.

"The enamel is first put on the concave or under face, which is done, as has been just said, with the fine settlings obtained in washing the granular enamel. For this purpose, a tool is put into the centre hole, and the water being poured off the settlings, it is taken up with a steel spatula, and spread as equally and as thin as possible over the concave surface; the tool is then taken out, and there is put in its place a bit of clean linen, which draws and absorbs the water; if this precaution were not taken, the counter-enamelling would fall off when the dialplate was turned over.

"To enamel the convex face the plate is turned over, a tool put in the centre hole, and then spread over the whole surface a layer of the bruised enamel, as evenly as possible, taking care to cover well the edges of the dial plate, and those of the various holes, to prevent the heat from burning them. To draw off the water which adheres to the enamel, a piece of fine linen is put round the edge of the plate, which draws out nearly all the moisture; and, in order that the particles of the enamel may arrange themselves properly, and be packed as close as possible, a few slight strokes are given to the tool in the centre hole. The neatness with which this is executed is essential; for to this is owing the beauty, polish, and glassy surface of the dial plate, by reason that the enamel becoming well packed, there are, when it melts, no hollows below the surface, and hence the surface remains perfectly smooth. In order to be sure that no water remains in the enamel, the dial plates are dried upon a square sheet of iron turned up on the edges on three sides, and placed over a chafing-dish, where it has its temperature raised.

"The preparation of the dial plate being finished, it is introduced by degrees under a muffle placed in a furnace, in order that it may be heated gradually. The furnace used in London for this purpose has some peculiarities in its construction: but any muffle furnace, if it be well made, will suffice for the purpose. It is left in this state, until the enamel is perceived to begin to melt, when the sheet of iron, on which the plate is placed, is turned round very gently, in order that the heat may effect every part of the

dial plate equally. When the polish of the surface shows that the enamel is melted, the plate is slowly withdrawn from the furnace, and left for some time at the mouth of the muffle, in order that the enamel may cool very slowly, as otherwise it would crack and split off the plate of copper.

"After the first firing, the plate is again cleaned, as before, with water sharpened with aquafortis; and the under surface is examined, and if necessary, retouched with settlings, as before. A fine layer of enamel is also spread over the convex face, and the plate is again exposed to the fire, with the same precautions as before: a third layer of the finest and whitest enamel is again spread on the upper or convex surface, and fired in the same manner; by which means the dial plate receives all the beauty of which it is capable.

"The hours and minutes are then enamelled on a convex face with a black, soft enamel, made for this purpose. It is ground very fine, in an agate mortar, with a pestle of the same substance, along with oil of spike, and spirit of turpentine. It is considered necessary that the enamel should be reduced to an impalpable powder, and therefore half a day is usually employed in grinding a single Troy drachm. More oil of spike is then added, to render it sufficiently thin to flow from the pencil.

"The place where the hour of twelve is to be placed having been marked from the first by a slight touch of the file, the dial plate is then placed on a flat surface, and by means of a pair of compasses, with one point blunt, and placed truly on the centre, and with the other bearing a black-lead pencil, the lines between which the hours and minutes are to be placed, are slightly traced on the surface. In order to divide these circles, a protractor with a moveable limb is used, and the place of the hours and minutes traced with black lead: these are then painted, and when thoroughly dry, the dial plate is again fired in the same manner as before, and is then finished.

The dial plates of clocks, when they do not exceed twelve or fifteen inches in diameter, are enamelled in the same way; but larger dial plates are made in separate pieces, generally as many as there are hours on the face, and then joined together."

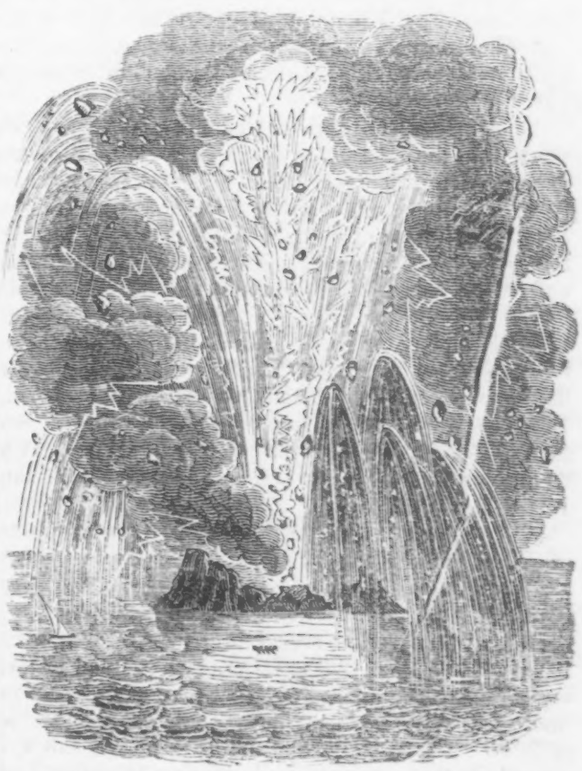
SUB-AQUEOUS VOLCANOES.

In our last number, we treated somewhat in detail of volcanoes. We again recur to the subject to say a few words in regard to sub-aqueous volcanoes. On this subject, Mr. Higgins remarks in his treatise on the Earth, which forms the LXVIIIth number of Harpers' Family Library, as follows:—

We have not authentick records of many sub-aqueous volcanoes. When it is considered that much the greater portion of the surface of the globe is covered by water, this fact may appear to intimate a much less active condition of the volcanick agent beneath the level of the sea than on dry land; but the elevation of the volcanick cones above the water is the real cause of this ascertained result. An eruption of any considerable violence must, of necessity, form an elevation that will come under the class of aerial volcanoes, and hence it is that so many active cones are situated in islands.

There is much difficulty in obtaining detailed information concerning the phenomena resulting from the activity of sub-aqueous volcanoes. That the eruptions are as numerous as from aerial craters, there can be no doubt; but there is less probability of their being observed. It is a singular fact, that we are acquainted with scarcely any instance of sub-aqueous eruption that has not produced an island; and yet it may be reasonably supposed that many do occur which have not sufficient energy to elevate the mineral masses above the level of the sea. This fact may be accounted for in two ways: the volcanick vent may be superposed by so great a depth of water, that no effect is produced on the surface by the eruption; or the energy which is exerted may be sufficient to occasion many phenomena on the surface of the water, though no observer is present; and therefore, in this instance, as well as in the former, we are prevented from gaining any information concerning the appearances exhibited.

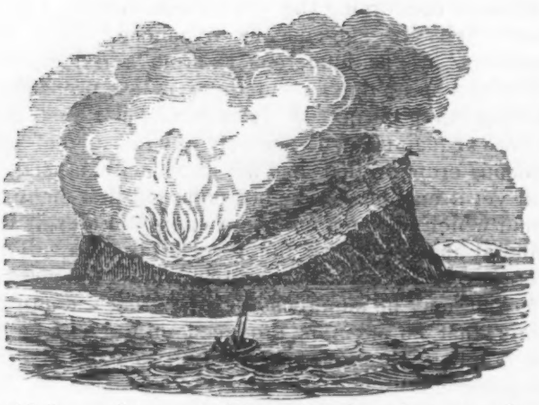
The most recent instance of sub-aqueous eruption with which we are acquainted, is that which produced Hotham or Graham island, in the year 1831. This island was thrown up in the Mediterranean, between the southwest coast of Sicily and the African coast, in latitude 37° 8′ 30″ north, and longitude 12° 42″ 15′ east. The eruption seems to have been first observed by John Corrao, the captain of a Sicilian vessel, who, passing near to the spot on the 10th of July, observed an immense column of water ejected from the sea to the height of sixty feet and about eight hundred yards in circumference.



[Graham Island, as seen by Corrao on the 18th of July.]

On the 18th of July, Corrao again passed the same spot, and he found that a small island had been formed, twelve feet high, with a crater in the centre, from which immense columns of vapour were ejected, and masses of volcanick matter.

The island was afterward visited by several sci-



entifick gentlemen, and is said to have been two hundred feet high, and three miles in circumference, on the 4th of August. But from this time the island decreased in size; for being composed of loose scoriæ and pumice, it was rapidly acted upon by the water, and on the 3d of September, when carefully measured by Captain Wodehouse, was only three fifths of a mile in circumference, and one hundred and seven feet high. At the end of October the island had entirely disappeared, except one small point composed of sand and scoriæ. Captain Swinburne examined the spot in the beginning of the year 1832, and found an extensive shoal to occupy the the place where the island had been, and in 1833, there was a dangerous reef, of an oval form, three fifths of a mile in circumference.

We may now close our remarks upon the active volcanoes, by the mention of one or two facts deduced from the consideration of the geographical arrangement, relative position, and attendant phenomena of active cones.

1. Nearly all the active volcanick cones are either situated in the immediate neighbourhood of the sea, or near some salt-water lake. A great number are found in islands, and many of the islands themselves have been produced by the volcanick cause. Some few exceptions, however, must be made to this rule, and we may particularly mention the American volcanoes, some of which are situated in the interiour of the continent, but from their relative position there is some reason to suppose that they are ranged over the same general line of communication with the sea. The volcano of Jorullo is more distant from the sea than any other; yet on one side it is connected with the Atlantick by Tuxtla, and on the other with the Pacifick by Colima.

1. Another observation, deduced from the geographical position of volcanoes, is, that they are generally arranged in lines. It is true that we may here and there find a solitary cone apparently unconnected with any other mountain, as is the case with Etna, and the Peak of Teneriffe; and, at other times, we may observe a small group of volcanoes, as in South America; but their most common position is in lines. The volcanoes of South America are arranged in this manner; and the fact suggested to Humboldt the supposition that they might be ranged over an immense chasm of intumescent matter.

3. Volcanoes are not confined to situations of any particular geological formation. They are found among primitive and secondary rocks; and the only restraint upon the formation of a volcanick cone, is the existence of an opposing force in the constitution of the mineral crust greater than the projecting force of the volcanick agent.

4. Earthquakes and thermal springs have their origin in the same agency as volcanoes. This statement leads us at once to a consideration of the circumstances under which these two classes of phenomena are exhibited.

FARMERS' DEPARTMENT.

APPLE MOLASSES.

I MAKE little cider; my apples are worth more fed to my hogs than for cider; but I make a practice of selecting my best sweet apples, those that furnish the richest, heaviest liquor, and making a cheese from them, using the cider thus obtained for making apple or quince preserves, boiling down for molasses, and keeping two or three barrels for drink, or ultimate conversion into vinegar. When new from the press, and before fermentation commences, that which I intend for boiling is brought to the house, and boiled to the proper consistence; taking care not to burn it, as that gives the molasses a disagreeable flavour, and taking off the scum that rises during the process. The quantity to be boiled, or the number of barrels of cider required to make one of molasses, will depend greatly on the kind of apples used and the richness of the new liquor. Four, or four and a half, are generally sufficient, but when care is not used in making the selection of apples, five barrels may be necessary; but let it take more or less, enough must be used to make the molasses, when cold, as thick as the best West India. When boiled sufficiently, it should be turned into vessels to cool, and from them transferred into a new sweet barrel, put into a cool cellar, where it will keep without trouble, and be ready for use at all times.

Molasses made in this way will be pure, and possess a vinous or rather brandied flavour, which makes it far superiour to the West India for mince, apple, or tart pies, though where the apples used are very sour, a small quantity of imported molasses may be advantageously used. It is also excellent for making beer in the summer, giving it a briskness and flavour which common molasses will not; in short there are but few uses to which molasses is applied, in which it will not be found equal or superiour to the other. Its cheapness should also be a decided recommendation to the farmer. The cider from which I manufacture my molasses, is worth at the press a dollar a barrel, and it is worth a dollar to reduce it to molasses, thus making the cost of a barrel of molasses, allowing four and a half barrels of cider to be used, four dollars and fifty cents. The price of common molasses will average about fifty cents a gallon, or sixteen dollars a barrel, making a saving to the farmer in the use of apple molasses, of about ten dollars per barrel.

EXPERIMENTS WITH THE POTATO.

MR. HOWDEN, of Scotland, has made experiments with one hundred and thirty varieties of the potato, most of which are unknown among us. From the table which he published, the product of the different species varied from two hundred and eighty to seven hundred and forty-five bushels the acre, we

suspect Scotch measure. The produce of four eyes, cut from the cluster species, and planted in four different kinds of soil—

On a strong rich loam,	34 pounds,
On a light rich loam,	29 "
On a good gravel,	19 "
On a sandy soil,	15 "

In an experiment accurately managed, under the London Horticultural Society, with a view to ascertain whether whole potatoes or sets were best for seed, five acres of ground were taken for the experiment, and five kinds of potatoes were planted, one half with whole tubers, and the other half with pieces containing one eye each. There was obtained—

	Tuns.	*Cwt.*	*lbs.*
From the tubers,	113	2	17
From the single eyes,	111	3	54

The difference, about two tuns, was hardly equal to the difference in the weight of seed. From a series of experiments made by the society, they publish the opinion, " that, in order to acquire the greatest possible weight of potatoes, per acre, it is necessary that large, heavy sound tubers should be employed; and that the space allowed for the growth of each plant, should be as nearly as possible such as it would naturally occupy, if suffered to spread freely on all soils without interruption; that this space will vary according to the habits of different varieties, and can only be determined by actual experiments; and that too much, and too little room, are alike injurious to productiveness. Finally, that it is quite practicable to double the crops that are usually obtained."

Mr. Knight raised thirty-four tuns nine hundred weight per acre, which, estimating the bushel at sixty pounds, would be about one thousand one hundred and sixty-six bushels to the acre; and he is of opinion that still larger crops may be obtained. The soil was a rich garden mould, and the manure employed was chiefly decayed oak leaves. The tubers were planted nine inches in the soil, and the mould was afterward raised three inches higher in ridges, to guard the young plants from frost.

The *Rohan Potato*, a new variety which has lately appeared in Switzerland, surpasses all others in size and productiveness, and is said to be very farinaceous and of excellent flavour. Three tubers, chosen at random, weighed thirteen pounds eleven ounces, eleven pounds nine ounces, and nine pounds thirteen ounces, and a small tuber, having only four eyes, weighing when planted, a few grains less than half an ounce, produced forty-eight and a quarter pounds. The earth is dug twenty inches deep, and the sets, containing two or three eyes, are dibbled in, four feet apart. This statement is from *The Cultivator*, of Jan. 1835, published in Switzerland. A dozen tubers of the Rohan potato have been received from France, and planted by a friend in the county of Greene; so that if they are as valuable as represented, we are likely to profit by them.

CANADA THISTLE.

EITHER of the two following methods—methods which have the sanction of both philosophy and experience—will, if thoroughly carried out, effectually destroy the thistle: and to one or the other of these ways, farmers who wish to rid themselves of this nuisance, may resort with confidence. The first method is by summer fallowing. We do not mean fallowing, as it is generally practised, viz.: ploughing up the ground twice or thrice in the season perhaps, but commencing with the plough as soon as the thistles show themselves in the spring, and repeating the operation as often as they appear above ground, which in the forepart of the summer will be as often as once a fortnight. The only rule is to keep them constantly under: none must be allowed to shoot; and if this system is faithfully adhered to, the thistle will soon be at an end. We know this method requires considerable labour and care, and prevents the use of the land for a spring or summer crop; but these are minor considerations compared with the certainty of destroying the thistle.

The other effectual method, and the one which we would advise in most cases to be pursued, is, to plough the thistle ground thoroughly, if in the fall so much the better, and in the spring, after the necessary preparation, plant the ground with potatoes or corn. These may be hoed in the usual manner two or three times, only taking particular care that not a plant escape the hoe, and pulling by hand those that grow in hills, so that in no case a shoot shall be left above the surface of the earth. After the corn and potatoes have attained some size, their growth has a tendency to check the thistle, and the scattering plants that appear must be exterminated by going over the ground as often as their springing up shall render such an operation necessary. To cut these scattering thistles, and the deeper they can be cut the better, an instrument made something like a chisel, with a long handle, will be found very useful. The greatest danger to be apprehended in this mode of destroying the thistle is, that some plants may be overlooked in the hills, and by thus giving the roots time to recruit, nearly or quite undo all that has been done. We wish here to repeat, and impress upon the mind of every farmer who engages in the destruction of the Canada thistle, that the grand secret lies in adopting a plan of operation which shall give them no resting-place, no breathing time. No halfway measure can be effectual; ploughing, if not often repeated, only scatters them the more, and hoeing will be equally useless if not carefully persevered in. The method of destroying by planting and repeated hoeings, has this advantage, that while if well performed it is equally successful with summer fallowing, the crop will in most cases pay the extra expense incurred, while naked fallowing returns little or nothing for the additional work expended.

The time, however, to attack the thistle, is on its first appearance, and never to wait until the horizontal shoots are formed, and the train laid for a century of evils. The seeding thistle is as easily destroyed as any weed of the garden or field, and even after it has begun to spread for a single season or so, no great effort is required to kill them. But when a farm is half covered, and plague spots of an acre or two abound, then they cannot be put down without great care and labour. In all evils precaution is better than care, and we advise farmers, one and all, not to overlook the first appearance of the thistle; let the spot where they are discovered be carefully marked, and by occasionally visiting the

spot, and cutting them below the surface of the earth, or pulling them by hand, which may then easily be done, one season will be the last. The evil produced by the Canada thistle is great; it is also rapidly increasing, and unless extra exertions are used, will soon become most formidable. It is not however hopeless, and in this case as in all others, "*nil desperandum.*" Genesee Farmer.

THE PINEAPPLE.

THE *Bromelia ananas* or *Ananassa sativa*, the common pineapple, is well known to every one on account of the richness and fine aromatick flavour of its fruit, which is esteemed the finest in the world. The plant is originally from Brazil, whence it passed to the West, and then to the East Indies. About the middle of the seventeenth century it was brought to Holland, and from that country it was introduced into Britain in the year 1690, where it is now cultivated more successfully than in any other part of Europe.

The name pineapple is derived from the circumstance of the fruit being covered on all sides with small triangular scales, resembling the cone of a pine-tree.

Many varieties of pineapples are known in the West Indies, and upward of thirty sorts are cultivated in England. Among these are the queen-pine, New Providence, brown sugarloaf, striped sugarloaf, Montserrat, Antigua, king-pine, green-pine, &c. Of these the two first are, perhaps, the most esteemed. The white or queen-pine, is the most common in Europe, and is the most to be relied on for a certain and good crop.

Pineapples seldom perfect their seeds in cold countries, and hence they are propagated by suckers, which appear on the fruit stalks, or proceed from the base of the plant, and by crowns or tufts, those peculiar productions which grow on the fruit. The suckers, after they have assumed a brownish colour, are removed from the plant, by breaking down the leaf beneath them and then moving them gently backward and forward till they fall off. Pines are seldom cultivated in the United States. In fact, the culture of the pineapple is very expensive and troublesome. Fruit is seldom produced till after the lapse of two or three years. A *bark-pit* is used for nursing the crowns or suckers, the plants are then transferred to a low stove called a *succession-pit*, where they are kept till they are ready for fruiting; they are then removed to the *pine-stove* or *fruiting-house*. In order to secure good pineapples, plenty of room must be allowed to the plants in the nursing and succession-pits, so that the lower parts of them may swell out and increase in bulk. Mr. Knight says that a loamy soil, well enriched with rotten manure, and the pots sufficiently drained, with abundance of heat without sudden extremes, will insure large and well-flavoured fruit.

Pines should be watered sparingly in dull weather, more especially in winter, from the beginning of October to the first or middle of March. After that, plentiful waterings may be given every three or four days. Fruiting plants ought to receive plenty of water from the time they go out of flower till they begin to colour. When they approach maturity, water should be applied more sparingly, inasmuch as by this means the flavour of the fruit is increased. The fruit is generally ripened from the month of June to September, and is known to be perfect by its acquiring a fine golden colour and a delightfully fragrant smell. The fruit is eaten in greatest perfection soon after being cut. It may be preserved, however, for several weeks, by putting the stem into a bottle of pure water, renewed every two or three days, and placed in a well dried room at a temperature of 60° Fahrenheit.

In some of the East India islands pineapples are said to be so abundant at certain seasons of the year, that the inhabitants clean their swords by running them through the fruit.

A juice is obtained from the pineapple, which by fermentation yields a liquor possessing stimulating and diuretick properties.

Pines are subject to injury from the attacks of brown and white scaly insects of the coccus tribe, as well as from the ant.

The Deathwatch.—The deathwatch, or ptinus, is an instance of insect-hearing. It makes a ticking noise, by beating its head with great force against what it stands on. Derham kept two in a box for three weeks, and found that, by imitating their sound, which is done by beating with the point of a pin, or the nail, on a table, the insect would answer him, by repeating its own tick, as often as he pleased.

USEFUL KNOWLEDGE.

FARINA.

A PATENT has lately been obtained for procuring nutritious food of a farinaceous character, which is exceedingly economical.

The patentee proposes to prepare from carrots, turnips, beetroot, mangel-wurzle, or potatoes, or any other roots of that kind which may be conveniently obtained, a fine white and nutritious farinaceous substance, capable of being converted to the best white bread, and to all the purposes of fine wheaten flour; and also into sugar.

The roots are to be washed perfectly clean, or deprived of their skins, and are to be cut into thin slices, and then submitted to the action of a solution of acid in water; sulphurick acid is to be preferred, but any of the other acids will answer the purpose. The quantity of acid to be employed will depend upon the roots to be acted upon: from two to ten pounds of acid will be required for every hundred weight of roots; carrots will require the smallest quantity of acid, potatoes the greatest.

This steeping of the roots in the solution of acid, will perfectly change their characters and taste, and when they are sufficiently acted upon, the acid and other matters held in solution, are to be removed from the slices of the roots, by washing them repeatedly with pure water. They may be afterward dried by exposure to the air and sun, or by a kiln at a low temperature; and when the mixture has been evaporated, and the slices of the roots brought to perfect dryness, they may be submitted to the operation of a mill, and ground into farina, or white flour in the ordinary way.

The slices of roots thus prepared will retain their nutritious properties unimpaired for any length of time, and in any climate, if not exposed to damp; and the flour obtained from grinding then will have exactly the same properties, appearance, and flavour, as wheaten flour.

In preparing sugar from the said roots, they are to be washed and sliced, and submitted to the action of the acid in the way above described, and then reduced into farina, as a first part of the process. The farina is then to be boiled with a solution of acid, in the proportion of about two pounds of the acid to one hundred weight of the farina. A saccharine matter is produced by this operation, which may be crystallized or granulated into sugar, by the ordinary mode of evaporating cane juice, or other vegetable extracts from which sugar is commonly made.

Instead of reducing the roots to a farinaceous powder, as last described, for the production of sugar, they may be steeped in their raw state in a solution of acid, in the proportion of ten pounds of acid to every hundred weight of roots; and after having been acted upon by the acid for about three days, the saccharine matter will be produced, which may be treated as before described, and sugar obtained therefrom.

Substitute for coffee.—The seeds of grapes are very generally used in Germany as a substitute for coffee, and they make a very excellent substitute. When pressed, they yield a quantity of oil, and afterward, when boiled, furnish a liquid very similar to that produced by coffee. Its flavour is delicious.

Alabaster.—A correspondent of Silliman's Journal writes that he saw in Ohio, a boat of crystalline sulphate of lime, white as the driven snow, thrown out at a landing-place, as a thing of very little value; indeed the writer says that it is to be had for about six dollars the tun, and is used only for improving the quality of land. This sulphate of lime is the alabaster, of which mantel ornaments are made, and is a fine variety of gypsum or plaster of Paris, its constituent materials being the same.

Glass-ware.—It probably is not generally known, that glass may be tempered so as not to be liable to crack when filled with hot water, by merely boiling in water, which should be cold when the glass is put into it, and then leaving it to cool gradually in the water. If the ware is to be exposed to a greater heat than that of boiling water, it should be tempered with oil.

A method of preventing iron and steel from rusting after being newly ground.—A blacksmith, who was formerly engaged in the manufacture of sickles, informed us, that the method he adopted to prevent them from rusting after grinding, was to immerse them for an hour, in water strongly impregnated with lime.

To clean all sorts of metal.—Mix half a pint of refined neat's-foot oil, and half a gill of turpentine. Scrape a little kernel of rotten-stone, wet with a woolen rag therewith—dip it into the scraped kernel, and rub the metal well. Wipe it off with a soft cloth, polish with dry leather, and use more of the kernel. In respect to steel, if it is very rusty, use a little powder of pumice with the liquid on a separate woolen rag first.

To Smiths.—It is said that a strong current of cold air is found to be much more valuable in hardening steel than water, which is commonly used. The manufacture of the celebrated Damascus blades is carried on only when the north wind occurs. The colder the air and the stronger the blast, the more effectual the process of tempering, but these are proportionate to the thickness of the article hardened.

Important to workmen in wrought iron.—The following information may prove useful to mechanicks and others employed in the use of wrought iron. It is perhaps not generally known that wrought iron, made red-hot and plunged into cold water, renders it much softer than by cooling gradually in the atmosphere, consequently rendering it more easy to be worked by the mechanick in the lathe, &c., &c. The prevalent opinion among smiths and mechanicks, that plunging red-hot iron into cold water makes it almost too hard to be worked, is a mistaken idea; for instance, take a piece of iron wire and having made it red-hot, plunge it into cold water till it is cold, which process will nearly render it as soft and tough as copper wire; and if that be not satisfactory, let the mechanick prepare a piece of iron which he is going to turn in a lathe, and when red-hot, plunge it into cold water until it is cold, along with another made red-hot from the same bar, and let it be gradually cooled in the atmosphere; when such a bar comes to be worked, the mechanick is sure to be convinced of the above fact.

REVOLUTIONARY ANECDOTES.

MRS. CHARLES ELLIOT.

A British officer, distinguished by his inhumanity and constant oppression of the unfortunate, meeting Mrs. Charles Elliot in a garden adorned with a great variety of flowers, asked the name of the Camomile, which appeared to flourish with peculiar luxuriance. "The Rebel Flower," she replied. "Why was that name given to it?" inquired the officer. "Because," rejoined the lady, "it thrives most when most trampled upon."

MRS. DANIEL HALL.

Mrs. Daniel Hall having obtained permission to pay a visit to her mother on John's Island, was on the point of embarking, when an officer stepping forward in the most authoritative manner, demanded the key of her trunk. "What do you expect to find there?" asked the lady. "I seek for treason," was the reply. "You may then save yourself the trouble of search," said Mrs. Hall. "You may find plenty of it at my tongue's end."

MRS. THOMAS HEYWARD.

Mrs. Thomas Heyward, in two instances, with the utmost firmness, refused to illuminate for British victories. An officer forced his way into her presence, and sternly demanded of Mrs. Heyward, "How dare you disobey the order which has been issued; why, madam, is not your house illuminated?"—"Is it possible for me, sir," replied the lady, with perfect calmness, "to feel a spark of joy? Can I celebrate the victory of your army, while my husband remains a prisoner at St. Augustine?"—"That," rejoined the officer, "is of but little consequence; the last hopes of rebellion are crushed by the defeat of Green at Guildford. You shall illuminate."—"Not a single light," replied the lady, "shall be placed with my consent, on such an occasion, in any window of my house."—"Then, madam, I will return with a party, and, before midnight, level it with the ground."—"You have power to destroy, sir, and seem well disposed to use it; but over my opinions you possess no control: I disregard your menaces, and resolutely declare—I will not illuminate!"

MRS. M'KOY.

A remarkable scene is related by Dr. Ramsay to have occurred on the occasion of Fort Augusta, commanded by Colonel Browne, being taken, which well deserves to be recorded. Passing through the settlement where the most wanton waste had recently been made by the British, both of lives and and property, a Mrs. M'Koy having obtained permission to speak to Colonel Browne, addressed him in words to the following effect: "Colonel Browne—in the late day of your prosperity, I visited your camp, and on my knees supplicated for the life of my son; but you were deaf to my entreaties. You hanged him, though a beardless youth, before my face! These eyes have seen him scalped by the savages under your immediate command, and for no better reason than that his name was M'Koy. As you are a prisoner to the leaders of my country, for the present I lay aside all thoughts of revenge; but when you resume your sword, I will go five hundred miles to demand satisfaction at the point of it for the murder of my son."

MRS. CHANNING.

Shortly after the commencement of the war, the family of Dr. Channing, then residing in England, removed to France, and sailed in a stout and well-armed vessel for America. They had proceeded but a little way when they were attacked by a privateer. A fierce engagement ensued, during which Mrs. Channing kept the deck, handing cartridges, aiding the wounded, and exhorting the crew to resist until death. Their fortitude, however, did not correspond with the ardour of her wishes, and the colours were struck. Seizing the pistols and side-arms of her husband, she threw them into the sea, declaring that she would rather die than see him surrender them to an enemy.

MRS. WILEY JONES.

The haughty Tarleton, vaunting his feats of gallantry, to the great disparagement of the officers of the continental cavalry, said to a lady at Wilmington—"I have a very earnest desire to see your far-famed hero, Colonel Washington."—"Your wish, colonel, might have been fully gratified," she promptly replied, "had you ventured to look behind you, after the battle of the Cowpens."

It was in that battle that Washington had wounded Tarleton, which gave rise to a still more pointed retort. Conversing with Mrs. Wiley Jones, Colonel Tarleton observed: "You appear to think very highly of Colonel Washington; and yet I have been told that he is so ignorant a fellow, that he can hardly write his own name."—"It may be the case," she readily replied, "but no man better than yourself, colonel, can testify, that he knows how to make his mark."

MRS. PINKNEY.

Pre-eminent in malignity stood the Engineer Moncrief. The instances of oppression issuing from his implacable resentment would fill a volume. I shall confine myself to one anecdote.

Mrs. Pinkney, mother of C. C. Pinkney, solicited as a favour that he would not suffer certain oak trees of remarkable beauty on a farm which he occupied, to be destroyed, as they were highly valued by her son, having been planted by his father's hand. "And where is your son, madam?"—"At Haddrels, sir, a prisoner."—"And he wishes me, madam, to have these trees preserved?"—"Yes, sir, if possible."—"Then tell him, madam, that they will make excellent firewood, and he may depend upon it they shall be burnt." Colonel Moncrief was no jester. The promptitude of his actions left no room for suspense. An opportunity was offered to injure and to insult, and he embraced it. The trees were burnt.

MISCELLANY.

HINMAN'S HOLE, N. Y.

This remarkable cavern is situated on the side of a hill, about three quarters of a mile from Little Falls, on the road to Trenton falls, in the state of New York.

It has recently been explored to the distance of one hundred and fifty feet, without being able to find any bottom. In two instances where men have volunteered to be let down, it was with great difficulty they were raised to the surface alive. A candle ignited ceases to burn at the distance of one hundred and fifty feet. At present no means have been used with success to ascertain the depth of the hole. We threw stones in at the mouth, and from the lapse of time which intervened before we heard the last reverberation, it is reasonable to infer the earth is hollow several hundred feet. At the mouth, it is large enough to receive a cow or a horse.

A few trees surround the spot, and there are marks of visiters stepping down ten or fifteen feet, on old trees which have fallen in and lodged in the descent.

I am not aware that this extraordinary fissure has ever been noticed, and I send you this memorandum so as to invite future investigations on the subject.

Saturday Chronicle.

TRACES OF ANCIENT CIVILIZATION AMONG THE SOUTH SEA ISLANDS.

Amongst the Caroline Islands, only six weeks' sail from Sydney, is Ascension, (about eleven degrees north latitude,) discovered very lately by his majesty's sloop-of-war Raven. Mr. Oug, now a resident of this colony, some years back remained there for several months, and we have our information from a friend, who conversed frequently with Mr. Oug on the subject. On the abovenamed island of Ascension, the language of the inhabitants is more harmonious than in the other islands of the South seas, a great many words ending with vowels. There are at the northeast end of the island, at a place called Tamen, ruins of a town, now only accessible by boats, the waves reaching to the steps of the houses. The walls are overgrown with bread, cocoanut, and other ancient trees, and the ruins occupy a space of two miles and a half. The stones of these edifices are laid bed and quoin, exhibiting irrefutable traces of art far beyond the means of the present savage inhabitants. Some of these hewn stones are twenty feet in length by three to five each way, and no remains of cement appear. The walls have door and window places. The ruins are built of stone, which is different from that occurring in the neighbourhood. There is a mountain in the island, the rocks of which are covered with figures, and there are far greater ruins eight miles in the interiour. The habits of these islanders exhibit traces of a different social system; the women do not work exclusively, as is the custom in the other islands. After the meals, water is carried about by servants for washing hands, &c. Asked about the origin of these buildings, the inhabitants say that they were built by men who are now above, (pointing to the heavens.) Hobart town Cour.

EXTINCT RACE OF MEN.

Mr. J. B. Pentland, in a paper before the British Association at Edinburgh, 1834, states the reasons which have led him to conclude that there existed, at a comparatively recent period, a race of men very different from any of those now inhabiting our globe, characterized principally by the anomalous forms of the cranium, in which two thirds of the entire weight of the cerebral mass is placed behind the occipital foramen, and in which the bones of the face are very much elongated. Mr. Pentland entered into details to prove that this extraordinary form cannot be attributed to pressure or any external force similar to that still employed by many American tribes, and adduced, in conformation of this view, the opinion of Cuvier, of Gall, and of many other celebrated naturalists and anatomists. The remains of this race are found in ancient tombs among the mountains of Peru and Bolivia, and principally in the great inter-alpine valley of Titicaca, and on the borders of the lake of the same name. These tombs present very remarkable architectural beauty, and appear not to date beyond seven or eight centuries before the present period.

The race of men to which these extraordinary remains belong, appears to Mr. Pentland to have constituted the inhabitants of the elevated regions, situate between the 14th and 19th degrees of south latitude before the arrival of the present Indian population, which, in its physical characters, its customs, &c., offers many analogies with the Asiatick races of the old world.

THE KING-SNAKE.

There is a large species of speckled snake commonly called in the southern states, the king-snake, perhaps, because he is the most formidable enemy of the rattlesnake. It seems to be the chief object of his existence, to seek, to pursue, and to destroy the latter, whose retreats and presence are discoverable by the emission of a peculiar smell, resembling that of the cucumber vine. The king-snake to most other reptiles, is the most gentle and harmless of creatures; you may strike him, he shows no resentment—he hisses not, he turns not, nor does he exhibit any terrour or sluggishness. Drawn by the smell of the cucumber, he frequently enters gardens, but his appearance excites no alarm in any human being, that knows he is the king-snake; on the contrary, women and children will approach him, turn him about with a stick, and playfully annoy him, with impunity; he is only a relentless enemy of the rattlesnake, whose strength and venom avail nothing against the activity and mode of attack of the king-snake, who is victor in every combat.

Yet the rattlesnake is a terrible reptile. There is a peculiarity truly appalling in the sound of his rattles, being unlike the noise of any other creature; and when you hear it the first time, the true instinct of nature impresses on your quailing heart that danger and death are near. Never shall I forget one horrid event of my life! I was fishing in a southern lake one summer-day, when an unusual disposition to sleep affected me. I stuck the end of my fishing-rod in the bank of the lake, and sought a beautiful place of shade to enjoy repose. I laid myself on the grass between two trees scarcely six feet

apart from each other, my head resting against one, and my feet against the other. I slept. When I awoke, I turned to one side, and perceived at some distance from me, two brilliant orbs—and instantly a tremulous, mingled sensation of an undefinable nature came upon my faculties. Something of an instinctive dictate or impulse counselled me to avert my looks, but then there was such an absorbing, wishful delight in gazing into eyes, that intently and meltingly gazed into mine, that even the tremulous pulsation of fear fixed my frame, and I remained so fascinated that I could see nothing but the most beautiful colours. In short, I was totally lost, so completely bewildered with commingled emotions, that I could not withdraw my gaze, nor even move.

Suddenly, the melting eyeballs glared with sparks of fire—there was a movement—I from a dreamy state—I saw a huge rattlesnake; its gaze was disturbed, and when I heard the hateful rattle sound, the full danger of my situation aroused me, and through all my frame I felt the extremity of terrour; and just as I was on the point of obeying a phrensied impulse to rise and fly, God of heaven! I felt the deadly reptile as I thought, coiling about my neck; I saw part of his body, I felt the slimy skin upon my neck, and the shiver of horrour went through every joint and member of my frame. Such a feeling of agony! my eyeballs were filled with scorching fire; first red, next yellowish green. O, there are moments of existence, which involve the sensations of years, and when the whole detail of a thousand feelings scarcely occupy the brief space of a leisure thought. Nature could endure no more and I lost all sense.

At length, I had the painful tingling sensation of returning life through my veins, and when in full consciousness I arose from the earth, I saw near me tranquilly and quietly a living king-snake, and farther off the lifeless length of a tremendous rattlesnake. I sat upon a log and reflected, and I am now satisfied that the king-snake, had crept over my neck to my rescue, there being a large log on one side, and the lake on the other, so that his nearest route to the enemy was over my body. But although my life was providentially preserved, yet the effects of that scene are the exhaustion of a great portion of my excitability and the introduction of grey hairs and premature debility, in all my powers of mind and body.

CURIOUS DISCOVERY.

Professor Brown of Philadelphia, has recently communicated to the French Academy of Sciences, some interesting results of his geological investigations. The workmen, in sawing a block of marble, cut through a cavity, containing a black substance, which the geologist sets down as primitive carbon. On this being removed, the cavity exhibited a flat surface, whereon were sculptured in relief many lines of Hebrew characters. Whether this be fact or fancy, it has given rise to some queer speculations. The question, as to how came the Aborigines in this Western World, who were found by its disoverers, we are told must now be settled by the "sawing of this block of marble," as the existence of these Hebrew characters incontestably prove that the Indians must have belonged to the twelve tribes of Israel!

FOOTMARKS OF AN EXTINCT ANIMAL IN THE SOLID ROCK.

Baron Alexander Von Humboldt has again arrived in Paris. At a meeting of the Academy of Sciences on the 17th August, 1835, he directed the attention of the members to the prints of the footsteps of a quadruped in the variegated sandstone, or *bunte sandstein*, of Hildburghausen. It is an animal of the Plantigrada division, which had traversed the rock in various directions while soft. A stone, from ten to twelve feet long, and three to four wide, containing these impressions, has been sent to the Collection of Geology at Berlin, of which the Baron submitted to the Academy a beautiful drawing. There are four or five impressions of a smaller species, which cross those of the larger quadruped at right angles, and are remarkable for the unequal dimensions of the fore and hind feet; all of them have the impressions of five toes. The rock is covered with them as with a net-work, and here and there sinuous serpular concretions are visible—perhaps the plants on which the animals walked, or probably some accidental defect in the process of drying. The great importance of this discovery consists in the position occupied by this sandstone in the chronological series of rocks.

A PLANT POSSESSING THE PROPERTIES OF SPONTANEOUS COMBUSTION.

A very interesting paper was recently read by Mr. Mornay, before the London Linnæan Society, describing a shrub which grows on the rivers of Brazil, and which is called the Euphorbia Phosphorescens. Where this Euphorbia forms large entangled, impenetrable masses, covering, perhaps, a quarter of an acre of ground, and growing some twenty feet high, it will take fire spontaneously, emitting for some time a vast column of dense black smoke, and at last bursting out in flames. Whenever the author had an opportunity of observing the combustion of the juice of this plant, on its coming into contact with atmospherick air, the temperature was a very little raised; the combustion (with flame) went on at a low temperature, until stopped by the formation of a crust, which quickly takes place. The temperature always appeared to be too low to spread into a conflagration.

While the labourers were excavating the earth of the Portland and Louisville canal, on the Ohio, at a depth of between twenty and thirty feet below the surface, they came upon what in all probability, had once been an ancient cemetery. It contained the bones of a great number of human skeletons, of a colour nearly black; and the bones, horns, and teeth, of various animals were found among them. One of the human skeletons was found standing erect, holding in his hand a beautifully polished semi-globular stone of the size of half an orange. The hand that held the stone was raised at an angle of forty-five degrees. The remains of regular hearths of brick and limestone, were also found. The limestone, was polished beautifully, and the bricks bore striking resemblance to those used by us. Charcoal was found on the hearth, just as it had been left by those who last lived there.

BATTLE BETWEEN PIZARRO AND ALMAGRO.

BATTLE BETWEEN PIZARRO AND ALMAGRO.

In our last number we gave a brief biography of Pizarro.—Diego Almagro, was the man selected by Pizarro to accompany him in his expedition to South America. During their voyage, the two commanders did not act with perfect harmony. After many quarrels, which were reconciled from motives of policy, Almagro set out on an expedition to Cuzco, in which city he was desirous of presiding.

As soon as Almagro appeared before the walls of Cuzco, he sent a summons to Ferdinand Pizarro, the Spanish governour to deliver up the city; to which he answered, that he held it by commission from his brother the marquis, and, as he knew it to be within the limits of his government, would not deliver it up without his orders; and he immediately began to put the place in a posture of defence: but part of the garrison being friends to Almagro, introduced his troops into the city at midnight, by which means Ferdinand and Gonzalo Pizarro were made prisoners; and Almagro summoning the magistrates, compelled them to acknowledge him governour, and at the same time appointed de Rojas his deputy.

The marquis Pizarro, who was still at Lima, hearing no news from his brother at Cuzco, and imagining that the parties he had sent thither to reinforce them, had been cut off by the Peruvians, sent thither five hundred Spanish horse and foot, commanded by Don Alonzo de Alverado, and under him appointed Pedro de Lerma captain of a troop of horse; who being an older officer, was so offended at the preference given to Alverado, that thenceforward he meditated the ruin of the enterprise.

The news of de Lerma's discontent being conveyed to Almagro, they made, by means of their emissaries, a private agreement, in consequence of which de Lerma, with a considerable body of men, took the first opportunity of deserting Alverado, after which the latter was vigorously attacked by Almagro's forces, his whole party routed, and himself taken prisoner.

The troops which had deserted to Almagro were amply rewarded, and marshalled into a body, the command of which was given to Pedro de Lerma: and several of the officers now strongly urged Almagro to provide for his future safety, by putting the Pizarros to death; a measure which he absolutely refused, declaring that it was beneath a gentleman and a soldier to destroy his prisoners in cold blood.

The news of this defeat made a deep impression upon the marquis Pizarro, who finding himself too weak to oppose Almagro, his whole force scarcely exceeding four hundred men, determined to try what could be done by policy; and therefore sent deputies to Cuzco, to propose an accommodation. Almagro, notwithstanding the representation of his friends, that Pizarro would never adhere to any treaty, received these deputies with great civility, and promised to have an interview with the marquis, in which commissioners should be chosen to settle the respective boundaries.

Accordingly, leaving a sufficient garrison in Cuzco, he marched out of that city at the head of about five hundred Spaniards, taking the road to Lima, and carrying Ferdinand Pizarro prisoner in his train; while Gonzalo Pizarro and Alverado, were left in the town under the care of de Rojas; but after Almagro's departure, they seized de Rojas, put him in irons, and made their escape to Lima, accompanied by about sixty men, whom they had won over to their interest.

Upon the news of this escape, Organez, lieutenant-general to Almagro, and others of the officers, urged him to revenge it by the death of his prisoner Ferdinand Pizarro; a piece of cruelty that he absolutely refused, and soon after met the marquis at Mala, with twelve men on each side, to terminate their differences. However, the conference was suddenly broken off, by one of Almagro's people rushing abruptly into his presence, and crying out that he was betrayed: on which he immediately took horse, and rode off, leaving matters entirely unsettled.

This alarm was occasioned by the approach of Gonzalo Pizarro with seven hundred men; which induced Organez also to advance with his troops, to repel by force the treachery he suspected to be in agitation.

Each party now seemed ready for war, but the marquis again found means to persuade Almagro to listen to terms; and a treaty was agreed upon, and sworn to on each side, by which among other advantages, the possession of Cuzco was ceded to Almagro, till the decision of the emperour should be known; and in consequence of this treaty, Ferdinand Pizarro was set at liberty, on his taking an oath not to act against Almagro.

No sooner had the marquis Pizarro obtained the point he aimed at, his brother's liberty, than he broke through the treaty, sending a notary with witnesses, to summon Almagro to surrender Cuzco, and all the places he had subdued, on pain of being treated as a rebel; and this dishonourable proceeding was still the more inexcusable, as, just before this time, he had received an express from court, enjoining each governour, on pain of the emperour's displeasure, to keep quiet possession of all such places as should at the time of that messenger's arrival, own their respective jurisdiction; and if they thought themselves injured, they were directed to make their appeal to the council of the Indies; but Pizarro saw fit to suppress these orders.

Almagro, now repenting the confidence he had put in the marquis, gave orders for securing Cuzco, and marched with his troops to a place called the Salinas, from a fountain of brackish water which sprung up there; and the marquis's army under Gonzalo Pizarro, meeting him at this place, an engagement ensued, which lasting two hours, Almagro was entirely defeated. Organez behaved with great gallantry, but growing faint with his wounds, accepted quarter from a person named Fuentez, who cruelly murdered him in cold blood.

In the heat of the engagement, Ferdinand Pizarro was unhorsed by Lerma, who at the same time upbraided him with his perjury, but his armour saved his life: and Lerma being afterward borne down by some of Pizarro's people, was treacherously stabbed; but he had the misfortune to recover to be butchered in a more cruel manner.

Almagro being ill, and too weak to sit on a horse, was carried into the field in a litter, and perceiving his army defeated, retired to the citadel of Cuzco, whither he was pursued by Alverado, to whom he was soon obliged to surrender.

As soon as Almagro was in the power of his ene-

mies, Ferdinand determined to be revenged for his own and brother's long imprisonment; and effectually to prevent his making head against the Pizarros for the future, caused articles of high treason to be drawn up against him, the principal of which were, that he had seized the city of Cuzco, made a secret treaty with the inca, encroached upon the government granted by the emperour to the marquis Pizarro, and fought two battles against the forces of his sovereign, by which much Christian blood had been spilt, and the progress of the Spanish arms considerably retarded.

Almagro being tried for these offences, was convicted, and condemned to die, though he insisted on appealing to the emperour. Alverado pleaded warmly that his appeal should be admitted, and in vain attempted to soften Ferdinand's inflexibility, by representing the kindness with which Almagro had treated both him and his brother, when they were his prisoners: even Almagro himself addressed Ferdinand in the most moving manner, entreating him to recollect the time when he had spared his life, in opposition to numbers who would have devoted him to destruction: and to remember how instrumental he had been in advancing the Pizarros to their present grandeur. He also begged him to consider that, bowing under the weight of age and infirmities, a very little time must, in the common course of nature, bring him to the grave; and besought him that, after the innumerable hardships he had suffered, he might be permitted to die a natural death.

But Ferdinand, deaf to all his entreaties, ordered him to be strangled, in the seventy-fifth or, according to some writers, the sixty-fifth year of his age; after which the dead body was beheaded in the great square of Cuzco, and lay exposed on the scaffold, almost naked, the greatest part of the day; no one daring to bury it, lest they should provoke the resentment of his enemies, who were inhuman enough to take no care of the interment, till towards evening, a few poor Peruvians, who had been his servants, wrapped the body in a coarse sheet, and conveyed it to a church erected by the Spaniards, where it was buried by the clergy under their high altar.

The enemies of Almagro have asserted that he was of mean parentage, which however, they could not possibly know, since he was found in the streets, and being never owned, was called by the name of the town in which he was found. His bravery was remarkable, and his presence of mind was such that no danger could disconcert him. He was kind to his soldiers, and slow in punishing their faults, yet maintained a strict discipline by the mere force of his own example. He kept a good table for his officers, but lived as hard himself as any private man in the army: and when, through this conduct, he has been charged with affectation, he used to reply, that "his was the diet of a soldier."

Having lived some time with a Peruvian woman, he had by her a son, named Diego, whom at his death he bequeathed to the care of Diego Alverado; who desiring Pizarro to evacuate so much of the country as he had always acknowledged to be under the government of Almagro, that he might take possession of it for the youth, was haughtily answered that his government was now unbounded, and he knew of no one who had a right to insist on sharing it with him, since Almagro was dead.

Alverado, incensed at this reply, determined to seek redress at the court of Spain, and therefore soon afterward embarked for Europe, with such evidences as were proper to support the cause of young Almagro.

It often appears that severe measures rather irritate than assuage civil dissensions; which was evidenced by the death of Almagro, which instead of extinguishing, increased his faction: upon which Ferdinand Pizarro, who from the behaviour of the soldiers, suspected that some designs were carrying on against his life, thought it best to retire to Spain, with all the gold he could amass, with a view to bribe the Spanish ministry: but Alverado having prepared the way for his reception, he was arrested as soon as he arrived, and thrown into prison; and notwithstanding Alverado died soon after, not without suspicion of having been poisoned to put a stop to the prosecution, yet Ferdinand continued in confinement twenty-three years.

About this time the Peruvians had again recourse to arms; and having in a great measure got rid of the terrour which the horses and firearms had occasioned among them, they were now able to make a stand against the Spaniards, who being by this time increased to above two thousand, found it more difficult to keep their ground, than they had to conquer the country with four hundred; and it seems highly probable, that if some particular bodies of Indians had not been so infatuated as to adhere faithfully to the Spanish interest, Pizarro might have been compelled to abandon his acquisitions after so long a possession.

The most valuable acquisition made after the death of Almagro, was the conquest of the province of Charcas, in which were the rich mines of Potosi, which the marquis divided among the conquerors, having first founded the city of La Plata, so called from its being situated among the mines.

TIMES GO BY TURNS.

BY SOUTHWELL,

A Poet of the sixteenth century.

THE lopped tree in time may grow again;
Most naked plants renew both fruit and flower;
The sorriest wight may find release of pain,
The dryest soil suck in some moistening shower.
Times go by turns, and chances change by course,
From foul to fair, from better hap to worse.

The sea of fortune doth not ever flow,
She draws her favours to the lowest ebb;
Her tides have equal time to come and go,
Her loom doth weave the fine and coarsest web;
No joy so great but runneth to an end;
No hap so hard but may in fine amend.

Not always fall of leaf, nor every spring,
No endless night, nor yet eternal day;
The saddest birds a season find to sing,
The roughest storm a calm may soon allay,
Thus with succeeding turns God tempereth all,
That man may hope to rise, yet fear to fall.

A chance may win that by mischance lost,
A net that holds no great, takes little fish;
In some things all, in all things none are cross'd;
Few have all that they need, none all they wish;
Unmingled joys here to no man befall;
Who least, hath some, who most, hath never all.

[Sulieman Bey, the Last of the Mamelukes.]

THE LAST OF THE MAMELUKES.

THE above cut is a portrait of the only survivor of the band of Mamelukes, that powerful corps who once exercised so much influence over the destinies of Egypt. A late traveller to the scene of their horrid massacre, gives us the following account of his visit :—

"Early in the morning of the 21st, we found the grooms with our horses in the court below, and after breakfast mounted for a visit of ceremony to the Abdi Effendi, the governour of the city. Having traversed the whole length of the city, we began, near its southern outskirts, to ascend, and presently found ourselves before the frowning walls of the citadel of Cairo. Here, in this strong eyry, well guarded by both nature and art, the pacha of Egypt has built his palace and gathered his treasures, and formed his arsenal for arms. The citadel stands on a spur from the range of Kebel Mokattam, the mountains that, stretching along on the east, help to form the valley of the Filo. Here they make a bend, and stretch off far to the eastward ; and at the angle, on an irregular platform thrown off from it, the citadel was built, or at least enlarged to its present dimensions, in the twelfth century, by the famous Saladin. It is a place of great strength, and may be considered as the key of all the upper parts of Egypt. On passing the heavy exteriour gateway, we found ourselves in the court, where twenty-five years ago, by order of Mohammed Ali, was perpetrated the bloody massacre of the Mamelukes. It is of irregular shape, with high walls on one side, and on the others steep ascents or precipices, surrounded by ramparts, above which again are heavy buildings, and among them the ruins of Saladin's palace. It was a place well chosen for such a butchery, and the whole plan of operations was strikingly characteristick of the man.

It will, perhaps, be recollected by the reader that the Mamelukes, as a distinct body, owed their origin to Saladin, who distrusting his native troops, formed a body-guard of slaves, procured by purchase, or capture from the countries bordering on the Caspian. They rose gradually under successive sultans, and all the fortresses at length being trusted to them, they concluded to turn the power to their own use, and through their beys became the governours of

Egypt. Various, after this, were their changes of fortune; the hardy soldiers, being generally successful in the field, but circumvented by their cunning adversaries in the council-room. The French found in them most obstinate and determined opposers; and when, at the close of this war, the British arms were triumphant, Lord Hutchinson demanded of the Sultan of Constantinople, to whom the country was yielded, restitution of the Mamelukes to their former privileges. He promised compliance, but had determined on the extinction of this race of dangerous subjects. The Turkish admiral, who was sent for this purpose, first enticed a great number of them to a pleasure excursion in boats off Aboukir, and his ships opening fire upon them, the greater portion were destroyed. War with their race being thus declared, Mohammed Ali, then first rising into notice, was sent with a force against them, but was defeated and compelled to retreat. This was the origin of the inveteracy of Mohammed Ali toward the Mamelukes.

On the invasion of Egypt by the English in 1807, the beys united with the rising pacha; but it was only a momentary truce; and the defeat of the English, giving him entire possession of Egypt, sealed at the same time the fate of his too trustful allies. He immediately formed a plan for the total destruction of the Mamelukes. His son Tousson was about this time preparing to lead an army against the Wahabees, and as this was a religious war, it was determined to invest him with the command under circumstances of unusual splendour. The Mameluke beys were invited to the ceremony, which was to commence in the citadel. They came, led by their chief, Chahyn Bey; and a more splendid cavalcade never filed in through the portals of this fortress. They amounted to four hundred and seventy men, on horseback, together with about an equal number of attendants of the same race on foot. Their reception was flattering. The pacha addressed them individually, and with a blind aspect and smiles welcomed them to the festivities. At length, it was necessary to form a procession, and the Mamelukes were honoured by being put into a body near the head of it: they filed down and entered this rocky court; but when their whole body had gained it, the gates were suddenly shut both in front and rear, and they found themselves cruelly entrapped. The heights above were in a moment covered with the pacha's soldiers, and a deadly fire was poured down on them. Rage and execration were in vain: they were coolly shot down till not an individual remained alive. One of the boys escaped by spurring his horse up the steep outer wall; in the descent the animal was killed, but the rider was unhurt.

This was the end of the Mamelukes. On the following day the soldiers rushed into the city, and under the pretext of searching for more victims, plundered a large part of it before the pacha and his son durst venture out to suppress their fury.

Our horses, on reaching this bloody court, seemed themselves to be seized with the very spirit of violence; for pricking their ears, they rushed up the steep ascent with headlong speed, and, whirling through Saladin's court, and then through a larger one, brought us up at length in front of the governour's palace. It is a long building and spacious, but is otherwise by no means remarkable. Abdi Effendi has been in England and France, and speaks the language of the latter country fluently. He received us with great politeness, and entertained us with the usual Eastern hospitalities. His questions with regard to our country were pertinent, and evinced a good knowledge of its laws and institutions. He spoke in terms of high admiration of his own sovereign; and indeed Mohammed Ali seems to have the faculty of creating a strong attachment for himself in all his officers. The governour said that if the pacha could live twenty years longer, he would make Egypt more civilized and more prosperous than it has ever yet been; but added that he stood alone, and greatly needed some one who could be a second self to him.

From the audience-hall we were taken to visit a number of schools in the same building; they occupy a number of rooms, and contained altogether four hundred youths preparing for publick employments in the country. As far as I could judge, they seemed to be awkwardly conducted. At the extreme end of the building we came to the Hall of Justice, where, on an ottoman and all alone, sat the judge, a man of prodigious corporeal dimensions. He was at this time unemployed, but our attention was drawn to a new mat with which the floor was covered. It had just been put down in place of one that, a few days before, had been worn through by the writhings of a poor wretch, who had been bastinadoed here; the punishment having followed close on the heels, if not of justice, at least of the culprit.

The adjoining side of the court into which this palace looks, is formed by a large palace of Mohammed Ali, to which, in the course of sight-seeing, we were next conducted. It is quite new, and in some parts not quite finished; and is more remarkable for the airy and spacious character of the rooms than for any beauties of architecture.—Indeed, all the palaces which we visited in Egypt, though cool and spacious, are marked by great simplicity. A hall of great width passes across at the centre of the building, and is intersected by another of somewhat narrower dimensions, running lengthwise; and thus at each angle a chamber is formed. These chambers are carpeted, and have the most luxurious ottomans passing quite around. These, with sometimes a glass lustre suspended from the lofty ceiling, constitute the only furniture. In the palace, which we were now visiting, the ottomans were covered with the richest French silks, with raised figures in beautiful patterns worked on them. In front of the seats hung down an impenetrable veil of silken tassels.

Rev. G. Jones' Excursion.

Ivy.—This plant saves many animals from want and death, in autumn and spring. In October, it blooms in profusion, and its flowers become a universal banquet to the insect race. The great black fly (*musca grossa*) and its numerous tribe, with multitudes of smallwinged creatures, resort to them: also, those beautiful animals, the latest birth of the year, the admiral and peacock butterflies. In its honey, it yields a constant supply of food, till the frost of November. In the spring, in the bitter months of March and April, when the wild products of the field are nearly consumed, the ivy ripens its berries; and almost entirely constitutes the food of the missel-thrush, the wood-pigeon, and other birds.

AMERICAN CAVERNS.

About twelve miles west of the Knox cavern, the village of Schoharie is situated, in the midst of a delightful valley, surrounded by mountains from four to six hundred feet in height.—These mountains are composed principally of secondary limestone, in which are hundreds of caverns. Many of these are interesting from the circumstance of their being natural ice-houses, so cold as to contain ice all the year, others on account of their vast size, and others because they contain some of the most curious specimens that nature forms in these dark and deep recesses.

During a few years past I have explored many of these caverns, but as I would weary you were I to describe all I have seen, I will only give you a sketch of the Great cavern, the most interesting one, by far, in this part of the United States.

This cavern is situated about three miles northeast of Schoharie Court House, and was first explored in 1831. The first opening is a gradual depression in the earth, about twelve feet in depth, which reaches to a perpendicular passage in the limestone, about ten feet in length, six in breadth, and seventy-five in depth. This opening was at first descended by a rope but it is now by a ladder, which, in its present condition, is by far the more dangerous of the two. At this depth is a narrow fissure in the rock, from which the mineral, prickly arragonite has been procured. From the base of the ladder commences a passage from four to ten feet in width, and fifty-five in length, running in a southerly direction, at an angle of at least sixty degrees with the horizon. The walls of this passage, when first discovered, were covered with some of the most beautiful arragonite ever found in this country, but they were soon stripped of this interesting mineral and the cavern, it was supposed, contained no more.

During my last visit I saw a quantity of clay adhering to the rock at the height of about forty feet, and it seemed possible that a deposite of arragonite might be concealed under it.—With considerable difficulty I succeeded in reaching this spot by means of a ladder, placed upon a projecting rock and extending across the passage. After removing the clay, I had the pleasure of finding what I had anticipated, and in the course of a few hours obtained about a bushel of this elegant mineral. But I might have paid dearly for my treasure, for the least slip or unsteadiness would have sent me headlong down a gulf of one hundred feet in depth, upon a floor of pointed rocks.

At the end of this inclined passage is a second perpendicular descent of fifteen feet, and from this to the bottom of the cavern, is another descent of thirty feet and of about the same inclination as the third passage. Here the opening is about ten feet wide, but the perpendicular walls reach about one hundred feet in height. On the north is an aperture sufficiently high to admit a person lying flat upon the rocky bottom. Here is seen a *lake*, as smooth as a mirror, and clear as crystal, on whose bosom lies a boat just large enough to contain a single person. Whoever has the boldness to navigate this gloomy region, unaided and alone, places lights on the bow and stern of the boat, falls upon his knees, inclines his head to protect it from the low rough rocks, and pushes himself forward. At the distance of a few feet the roof is so high that he can assume an erect position. The passage varies in width from five to thirty feet, and the water from two to thirty feet in depth. A few hundred feet from the entrance he meets with a semicircular dam formed of calcareous tufa. This is a brown spongy mass of lime, sand, &c., deposited by water. Over this dam the water falls twelve or fifteen inches, and the navigator is obliged to stand on this frail barrier and draw the boat into the water above. But he soon meets with thirteen similar dams formed in the same manner, from fifteen to twenty feet apart, and from two to fourteen inches above the water. The light reflected from these little waterfalls, presents a view of almost unrivalled beauty.—Having passed these obstructions he soon reaches the termination of the water and ascending a small rocky hill, he enters, through a narrow opening, the Square Room, which is about fifty feet square, and sixty feet high. Upon the floor lie scattered masses of rock, which appear to have just fallen from the roof, and huge shapeless blocks hang upon the poise and seem to threaten the intruder with instant death.—At this spot he hears the mournful sound of an unseen waterfall, resounding through the chasms of the rocks, which he easily imagines to be his funeral knell. There are in this wing of the cavern no peculiar formations, except the dams, in consequence of the abundance of sandstone mingled with the limestone.

From the perpendicular passage the subterranean traveller creeps a distance of twenty feet, when he arrives at a narrow opening to the left, leading into a room about twenty feet in diameter, and about thirty feet high. Returning by the aperture, he proceeds thirty feet farther, when he reaches a second lake extending across the cavern. This lake is about ten feet below the level of the first; (to which it is connected by a small brook that runs on the west side of the low opening:) and is in many places about thirty feet deep, consequently it can be crossed only by a boat. Into this he now enters, and after sailing three hundred feet over water so transparent that the smallest pebble can be seen by torch-light at the bottom, he reaches the spot where the water disappears beneath the rocks. After climbing up the steep acclivity to the right, he stands in the Rotunda, the noblest room in the cavern. It is of a regular and circular form, one hundred feet in diameter and nearly one hundred feet in height. The floor descends gradually to the centre, forming a spacious gallery all around it. When first discovered this room was very rich in mineralogical specimens, but they were long since removed to the cabinets of the curious.

To the right of the Rotunda were at first several rooms, but they last winter, were united by the clay being dug away which separated them. In this clay have been found vast numbers of beautiful white stalagmites and stalactites, and vast slabs of alabaster, in and on which were found stalagmites weighing four or six hundred pounds each. Some of the most curious specimens that have been found here, are in Peale's museum in New York, the most singular of which is a stalagmite exactly resembling the human mammary or suckling organ.

As you are acquainted with the manner in which these specimens are formed, you may be surprised

to learn that they have been found from two to three feet below the surface of the clay, I will therefore explain how they came in so singular a situation. After a quantity of stalactites and stalagmites were formed, by some means the cavern became filled with water, in which was a vast quantity of clay in particles. The stalactites that had fallen off by their own weight, and those that were broken off by the rush of the water, together with the specimens formed on the floor, were buried by the clay as it fell down from the water. The cavern at length became drained by the water finding a passage, probably where we now see it, and formations again commenced. It is certain that there was a long period before the cave was filled with water, because the specimens required many hundred years to attain their size, and they could not have been formed whilst the water was in it, and it is equally plain that hundreds of years have passed away since the draining of the cavern, for stalagmites *on* the clay were found as large as those *in* it.

To the south of the Rotunda a long narrow passage extends four hundred and fifty feet, but it contains nothing of interest. The whole distance that has been explored is three thousand feet, or about three fifths of a mile, but as there is a vast body of clay in the southwestern part of the cavern, no idea can be formed of its real extent. Its depth from the surface to the bottom of the water is one hundred and eighty feet.

Owing to the difficulties in the descent, but few ladies have had the boldness to examine the cavern. The first one who ventured was a lady about seventy years of age, but she only succeeded in reaching the bottom. The first one who entered its deep recesses and explored the whole southern wing, was Miss ——, of New Brunswick, N. J.

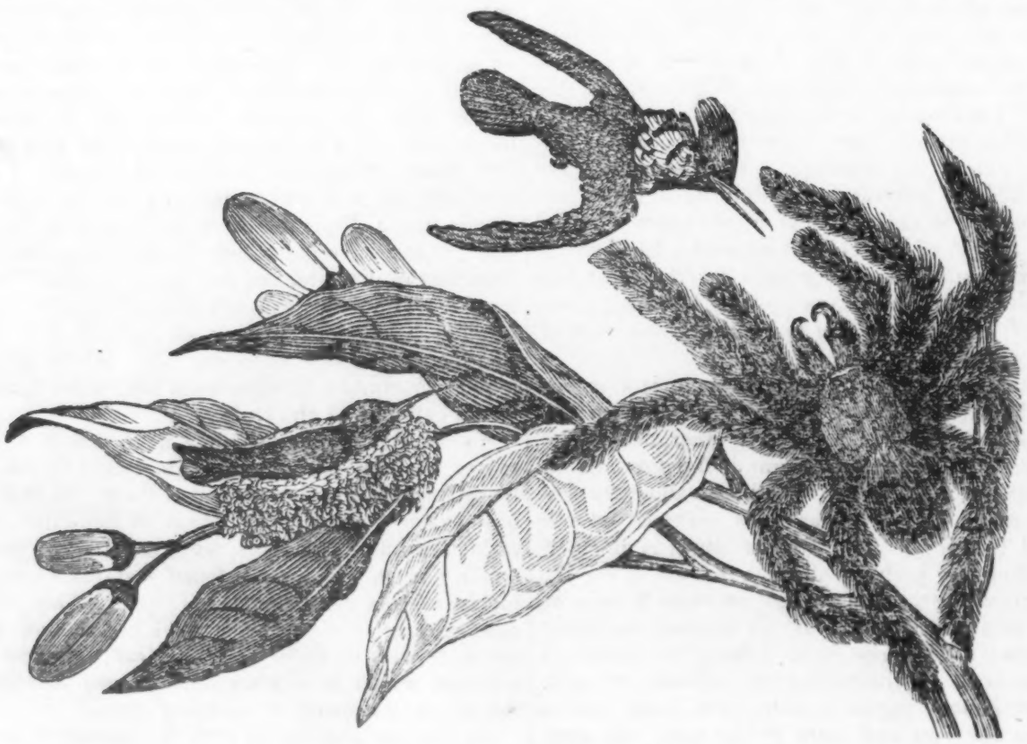
I have visited this celebrated cavern twelve or fifteen times, and have endeavoured to draw for you a faithful description; it is true it differs much from what has been said and written of its magnificence, but the wider the difference, the more nearly, I believe, it approaches the truth.

N. B. Times.

NATURAL HISTORY.

THE SAGACITY OF THE SPIDER.

Amongst all the insects, the spider appears to possess the greatest sagacity, and is, at the same time, formed by Nature to be in a state of combat, not only with other insects, but also against those of its own species. Its head and breast are covered with a very strong coat of mail, impenetrable to the attacks of other insects; its belly is enveloped with a soft and flexible skin, which eludes the sting of the wasp; and its limbs are articulated, like those of the craw-fish, each of them having at their extremities large nails, which serve to keep its assailants at a distance. The eyes of the spider are large, and covered with a scaly transparent substance: below its mouth are claws, or nippers, which enable it either to destroy or to make use of the prey that may fall into its claws or web, in the latter of which, however, it seems to place more confidence than in its arms offensive or defensive; and for this end Nature has furnished it with a glutinous liquor, which it spins to what size it pleases, either by opening or contracting the sphincter muscles. In order to spin its thread, as soon as it begins its operations, it presses out a drop of the liquor, which, as it dries, forms the thread it draws out, as the spider diverges from its first position. When it reaches its intended distance, it seizes the thread with its claws to stretch it properly, and fix



[The Spider, and Humming birds.]

it. In a similar manner it secures many threads parallel to each other, which answer as a warp for the web. To form the woof, it does the same thing transversely, by fixing one end to the outward threads, which are always the strongest, and the other to the wall. All these threads, when neatly prepared or spun, are glutinous: and those parts, which are most subject to be torn, the spider secures by doubling them, in some instances, even six times.

The domestick spider usually renews its web every three days, although those it may have made before are not destroyed; and it has been remarked, that a large spider of that species frequently goes round its web, and having examined it in every place, retires to its hole again. The chief enemy of the domestick spider is another spider of a larger size, of both of which an attentive observer has furnished the following particulars: One of the latter genus not being able to spin any more web, came to invade the property of his smaller neighbour; a terrible conflict immediately ensued, in which victory seemed to incline to the side of the usurper, for the industrious spider was obliged to take refuge in his hole. After this, the conqueror employed every method it could use to draw the other from his retreat: at one time it appeared to go away, but at another returned again quickly, until, at length, seeing that all its artifices were vain, it began to destroy the web of the vanquished. This occasioned another battle, in which the laborious spider had the good fortune to kill his antagonist. Then in the peaceable possession of what so justly belonged to it, it passed three days in repairing the breaches of its web, without taking any nourishment. Some time afterward, a large blue fly fell into the net, and struggled violently to get loose: the spider at first let it alone, but finding that it was too strong for the web, it came out of its hole, and in less than a minute so completely enveloped the fly in a new thread, that its escape became impossible. It subsisted on this fly for a week. One day a wasp was thrown into the web; the spider, according to custom, ran toward the object that disturbed it, but on observing the enemy it had to deal with, it soon broke all the strings that confined the wasp, and did every thing in its power to get rid of such a formidable antagonist. The breaches in the web being now irreparable, it abandoned it entirely, and began a new one, which it ended in the usual time.

To see how many webs a spider was capable of furnishing, this new web was destroyed; it made another, which was also demolished: it now seemed exhausted, for it spun no more. The artifices it then used, although deprived of its chief protection, were surprising. It drew up its claws like a ball, and remained for four hours immoveable, yet always on its guard: but when a fly approached near enough, it instantaneously darted on it, and seldom missed its prey. At length, as if disgusted with this sort of life, it determined to invade the possessions of another spider, and making an attack on a neighbouring fortification with much vigour, it was repulsed. Far from being discouraged by this disappointment, it laid siege to another for three days, at the end of which it killed the proprietor and took possession of the premises. This spider lived for three years, and each year changed its skin. By way of experiment, (it was a cruel one,) one of its claws was frequently snatched off, but always replaced by a new one in two or three days.

The male spider is much smaller than the female, which is oviparous, and when she has laid her eggs, she envelopes them carefully in a piece of her web. As soon as the little ones are hatched, they begin to spin, and appear to grow even to the eye. If they have the good fortune to catch a fly, which they are able to do twenty-four hours after their birth, they seize on it voraciously: but sometimes the young live three or four days without any nourishment; this, however, does not prevent their increasing in bulk every day.

HUMMING-BIRDS.

The humming-birds are a most singular genus or group, resembling slightly the nectar suckers of the Eastern continent, but still vastly different from them in almost every respect; and different indeed from all known birds. They are the smallest of the feathered tribe, some being not much more than half an inch in length; they are the most beautiful in the texture and colours of their plumage; for no matter and no other substance can come up to the richness of their teints, or the glowing brilliancy of their metallick reflections. They are the most active of all known birds, exceeding in this respect even the swifts, they are still more powerfully winged, in proportion to their size, than these are; and there are no birds which have the sternum and the bones which give firmness to the shoulder more finely developed. In fact, the whole of their energy is concentrated upon this part of their organization, and their different styles of flight are all equally vigorous. Suspended in the air, and hovering over a flower, their wings move with so much rapidity that they are not seen except as gleams of light of different colours, but all radiant, as the beams of the sun take them at those angles at which they give out their different lustres; and while the rapid motion of the wings thus renders them invisible, except as gleams of light playing around the little body of the bird, they make a sound similar to that of the humming produced by the wings of bees and other insects; and it is on account of this, that they get their English name of humming-birds. They can hover about in this way for a considerable time; and this rapid motion of the wings, when hovering, appears to give them an impetus for flight, in like manner as a similar, though slower motion, gives an impetus to eagles and other birds of prey, which stoop with great rapidity through the air. In consequence of the impetus thus given, the humming-birds can in an instant dart from one place to another, upward, downward, or laterally, without any apparent effort. When they take longer flights, they do not fly on a level with steady wing, but describe a series of flat arches, each arch appears as if it were a separate leap in the air.

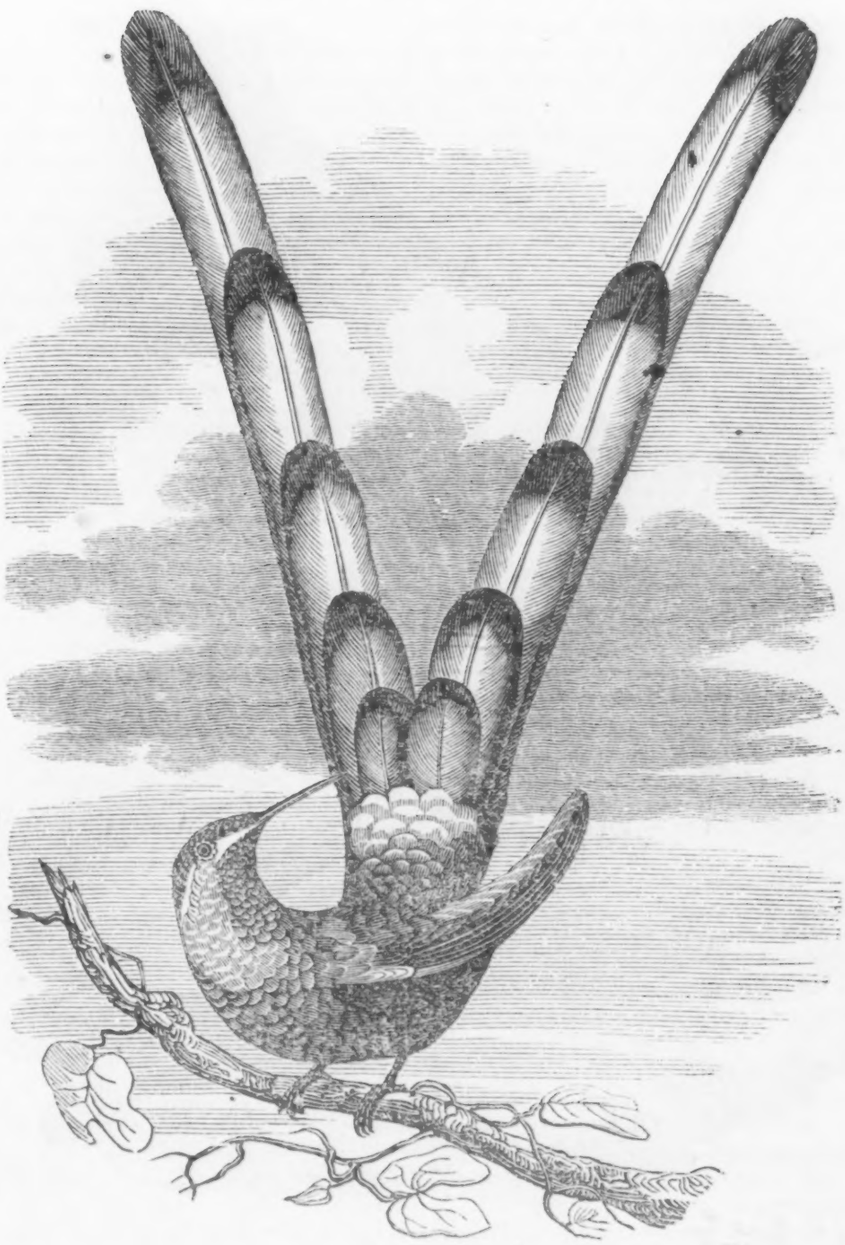
They are exclusively birds of the American continent, and in the rich and warm districts within the tropicks, they swarm as numerously as flies do in summer in the forests of Lapland or Canada. The known species amount to several hundreds; and as their native localities are not easily explored, the unknown species may be very numerous. Individ-

[The Humming-Bird.]

ually, they absolutely swarm and people the whole atmo sphere with the most brilliant, though minute glo ries of the living world, which are at the same ti me in a state of wonderful activity; they are not confined to America, within the tropicks, nor to the low and warm parts of the tropical countries; though every where they are more numerous, and in greater variety, in proportion as the place is more warm and fertile. Some, however, are found high upon the table-lands, and slopes of the mountains, where the climate is not only temperate, but absolutely cold; others range as far southward, as the strait of Magellan, and probably, also, into Terra-del-Fuego, while others again are found to the north of Canada as high as the fifty-seventh parallel of north latitude; while on the west side of North America they reach to latitudes still higher. Nor must it be supposed, that even in this cold latitude they are at all out of their place or their element; for when Captain King was surveying the coast of the extreme south of America, he found large flocks of humming-birds flying about, apparently at their ease, in the middle of a snowstorm.

The texture of their plumage is indeed as worthy of attention as the teints of colour, and the brilliant metallick reflections; for though they are very little birds in all the species, and not larger than humble-bees in the most minute one, their plumage is exceedingly compact, and probably forms a better defence against alternations of heat and cold, and of drought and moisture, than that of any other birds whatever. The individual feathers are beautifully formed; and more compactly laid than those of any others, if we except the under parts especially, of those birds which are almost constantly in the water without ever getting wet.

One of the most curious of the humming-birds, is the one seen on the opposite page; it is called the bartailed humming-bird. It is a most singular species, and considerably larger than many of the others. It is understood to inhabit a considerable extent of the table-land of the Andes, both in Mexico and Peru; but it has not hitherto been found in any of the coast countries or the islands. The bill is a little bent, awl-shaped, and very sharp at the point. The upper parts are golden-green, with a slight tinge of purplish-brown; the under part from the bill to the middle of the belly is bright emerald-green, peculiarly rich on the middle of the throat, and composed of scaly feathers which extend along the whole of the breast. The lower part of the belly is all green, and the vent feathers grayish-



[The Bartailed Humming-bird.]

white. The rump is clear and red, but without any metallick lusture, and the feathers have not a scaly appearance. The tail, however, is the most singular part of this bird. It consists of two parts, standing at an angle to each other like the letter V. The outside feather in each branch is very long, not less than six inches. The second feather is only about three inches and a half, the third a little more than two inches, the fourth shorter than that, and the last one about three quarters of an inch. The principal colour of these feathers is bright redish orange, of a very brilliant metallick lustre, and varying in different lights through different shades from red to yellow. There is a black bar across the end of each feather, which shortens as the feathers shorten. This bar is carried down the outer margin of every feather except the first and second, and the basal two thirds of the first has also the outer margin black. Where the margin is black, the shaft of the feather is also black, and where there is no black margin, the shaft is relieved by a slender black line upon each side. Altogether, it is one of the most singular appendages to be met with in the whole feathered creation; and though we are not very well informed with regard to the manners of many of the family, the strong fortification of coverts which this tail possesses would lead us to conclude that it is capable of some corresponding action which is essential to the economy of the bird.

THE HELAMYS.

The land at the Cape of Good Hope, where the animal creation assumes so many different and singular forms, is the native country of this singular quadruped, or rather of this strange biped, an engraving of which is presented to our readers on the following page.

The formation of the helamys is very curious. It is but little larger than a rabbit; its posterior ex-

[The Helamys.]

tremities are very long, and are provided with long feet, while the anterior extremities, which are extremely short, are terminated by hands. Its tail, also, is extremely well developed. Its eyes are large, full, and black; and its ears are very long. Its skin is of a yellowish brown, shaded with gray on the head, back, tail, and flanks, while under the chin, on the chest and belly, it is of a pure white.

The difference which we have mentioned as existing between the anterior and posterior extremities, is so great, that if the helamys were obliged to walk like other quadrupeds, it would experience great inconvenience; but, like the kangaroos to which it is allied, it does not walk; it only leaps, and avails itself, to execute this rapid motion, of its hind legs, by which it can throw itself from eight to ten feet In this motion its muscular tail is also of service, this is used as a kind of balance, and even according to some authors as a point of support to facilitate its leap; the head is then held erect and the fore legs are adapted so closely to the body as to be invisible. It generally remains in an erect position, and never leaves it except in those cases where under similar circumstances, man himself would go on all fours, as in descending precipices, &c.

The helamys, like the rabbit, dwells in subterraneous burrows, which it forms very quickly, by means of its long claws. It is extremely timid, and its habits are peaceable and innocent. At night it emerges from its subterraneous abode, in search of nourishment, and on the slightest alarm, hurries homeward. During the day it remains in its hole, and passes its time either in sleep, or in arranging its stores of winter provisions. It sleeps, however, a great deal, and prepares itself for repose, by setting down, its back against the wall of its apartment, its hind legs are then brought forward, are slightly separated, and bent at the knee: the head is now inclined to its place between the knees, and then its long ears are folded over its eyes like curtains. These arrangements are, as is seen, well calculated to keep all the limbs warm, to protect the delicate parts of the head, and to prevent the sleeper from being disturbed by any light or noise.

DIVISIBILITY.

The actual subdivision of bodies has, in many cases, been carried to a prodigious extent. A slip of ivory, of an inch in length, is frequently divided into a hundred equal parts, which are distinctly visible. But, by the application of a very fine screw, five thousand equidistant lines, in the space of a quarter of an inch, can be traced on a surface of steel or glass with the fine point of a diamond, producing delicate iridescent colours. Common writing paper has a thickness of about the 500th part of an inch; but the pellicle separated from ox-gut, and then doubled to form gold-beater's skin, is six times thinner.

A single pound of cotton has been spun into a thread seventy-six miles in length; and the same quantity of wool has been extended into a thread of ninety-five miles; the diameters of those threads being hence only the 350th and 400th part of an inch.

But the ductility of some metals far exceeds that of any other substance. The gold-beaters begin with a riband an inch broad and one hundred and fifty inches long, which has been reduced, by passing through rollers, to about the 800th part of an inch in thickness. This riband is cut into squares, which are disposed between leaves of vellum, and beaten by a heavy hammer, till they acquire a breadth of more than three inches, and are therefore extended ten times. These are again quartered, and placed between the folds of gold-beaters' skin, and stretched out, by the operation of a lighter hammer, to the breadth of five inches. The same process is repeated, sometimes more than once, by a succession of lighter hammers; so that three hundred and seventy-six grains of gold are thus finally extended into two thousand leaves of 3.3 inches square, making in all eighty books, containing each twenty-five leaves. The metal is, consequently, reduced to the thinness of the 282,000th part of an inch, and every leaf weighs rather less than than the fifth part of a grain. Silver is likewise capable of being laminated, but will scarcely bear an extension above half that of gold, or the 150,000th part of an inch thick. Copper and tin have still inferiour degrees of ductility, and cannot, perhaps, be beat thinner than the 20,000th part of an inch. These form what is called *Dutch leaf*.

In the gilding of buttons, five grains of gold, which is applied as an amalgam with mercury, is allowed to each gross; so that the coating left must amount to the 110,000th part of an inch in thickness. If a piece of ivory or white satin be immersed in a nitro-muriate solution of gold, and then plunged into a jar of hydrogen gas, it will become covered with a surface of gold hardly exceeding in thickness the 10,000th part of an inch. The gilt wire used in embroidery is formed by extending gold over a surface of silver.

A silver rod about two feet long and an inch and a half in diameter, and weighing nearly twenty pounds, is richly coated with about eight hundred grains of pure gold. In England, the lowest proportion allowed is one hundred grains of gold to a pound of silver. This gilt rod is then drawn through a series of diminishing holes, till it has stretched to the vast length of two hundred and forty miles, when the gold has, consequently, become attenuated eight hundred times, each grain covering a surface of 9500 square inches. This wire being now flatted, the golden film suffers a farther extension, and has its thickness reduced to the four or five-millionth part of an inch. It has been asserted, that wires of pure gold can be drawn of only the 4000th part of an inch in diameter. But the late Dr. Wollaston, by an ingenious process, advanced much farther. Taking a short cylinder of silver, about the third part of an inch in diameter, he drilled a fine hole through the axis, and inserted a wire of platinum, only the 100th part of an inch thick. This silver mould was now drawn through the successive holes of a steel plate, till its diameter was brought to near the 1500th part of an inch, and, consequently, the internal wire being diminished in the same proportion, was reduced to between the four and five thousandth part of an inch. The compound wire was then dipped in warm nitrick acid, which dissolved the silver, and left its core, or the wire of platinum. By passing the incrusted platinum through a greater number of holes, wires still finer were obtained, some of them only the 30,000th part of an inch in diameter. The tenacity of the metal, before reaching that limit, was considerable; a platinum wire of the 18,000th part of an inch in diameter, supporting the weight of one grain and a third. Such excessive fineness is hardly surpassed by the filamentous productions of nature. Human hair varies in thickness, from the 250th to the 600th part of an inch. The fibre of the coarsest wool is about the 500th part of an inch in diameter, and that of the finest only the 1500th part.

The silk line, as spun by the worm, is about the 500th part of an inch thick; but a spider's line is, perhaps, six times finer, or only the 30,000th part of an inch in diameter; insomuch, that a single pound of this attenuated substance might be sufficient to encompass our globe. The red globules of the human blood have an irregular, roundish shape, from the 2500th to the 3300th of an inch in diameter, with a dark central spot. The trituration and levigation of powders, and the accidental abrasion and waste of the surface of solid bodies, occasion a disintegration of particles, almost exceeding the powers of computation.

Emery, after it has been ground, is thrown into a vat, filled with water, and the fineness of the powder is distinguished by the time of its subsidence. In very dry situations, the dust lodged near the corners and crevices of ancient buildings is, by the continual agitation of the air, made to give a glossy polish to the interiour side of the pillars and the less prominent parts of these venerable remains. So fine is the sand on the plains of Arabia, that it is carried sometimes three hundred miles over the Mediterranean, by the sweeping sirocco. Along the shores of that sea, the rocks are covered by the pholas, a testaceous and edible worm, which, though very soft, yet, by unwearied perseverance, works a cylindrical hole into the heart of the hardest stone. The marble steps of the great churches in Italy are worn by the incessant crawling of abject devotees; nay, the hands and feet of bronze statues are, in the lapse of ages, wasted away by the ardent kisses of innumerable pilgrims that resort to those shrines. What an evanescent pellicle of the metal must be abraded at each successive contact! The solutions of certain saline bodies, and of other coloured substances, exhibit a prodigious subdivision and dissemination of matter.

A single grain of the sulphate of copper, or blue vitriol, will communicate a fine azure teint to five gallons of water. In this case, the copper must be attenuated at least ten millions times; yet each drop of the liquid may contain as many coloured particles, distinguishable by our unassisted vision. A still minuter portion of cochineal, dissolved in deliquiate potash, will strike a bright purple colour through an equal mass of water. Odours are capable of a much wider diffusion. A single grain of musk has been known to perfume a large room for the space of twenty years. Consider how often, during that time, the air of the apartment must have been renewed, and have become charged with fresh odour! At the lowest computation, the musk had been subdivided into three hundred and twenty quadrillions of particles, each of them capable of affecting the olfactory organs.

The vast diffusion of odorous effluvia may be conceived from the fact, that a lump of asafœtida, exposed to the open air, lost only a grain in seven weeks. Yet, since dogs hunt by the scent alone, the effluvia emitted from several species of animals, and from different individuals of the same race, must be essentially distinct. The vapour of pestilence conveys its poison in a still more subtile and attenuated form. The seeds of contagion are known to lurk, for years, in various absorbent substances, which scatter death on exposure to the air. But the diffusion of the particles of light defies all powers of calculation.

A small taper will illuminate the atmosphere to the distance of four miles; yet the luminous particles, which fill that wide concavity, cannot amount to the 5000th part of a grain, which may be the whole consumption of the wax in light, smoke, and ashes. Animated matter likewise exhibits, in many instances, a wonderful subdivision. The milt of a codfish, when it begins to putrefy, has been computed to contain a billion of perfect insects; so that thousands of these living creatures could be lifted on the point of a needle. But the infusory animalcules display, in their structure and functions, the most transcendant attenuation of matter. The *vibrio undula* found in duck-weed, is computed to be ten thousand million times smaller than hemp-seed. The *vibrio lineola* occurs in vegetable infusions, every drop containing myriads of those oblong points. Of the *monas gelatinosa*, discovered in ditch water, millions appear in the field of a microscope, playing, like the sunbeams, in a single drop of liquid. Insects have been discovered so small as not to exceed the 10,000th part of an inch, so that 1,000,000,000,000 of them might be contained within the space of one cubick inch; yet each animalcule must consist of parts connected with each other, with vessels, with fluids, and with organs necessary for its motions, for its increase, for its propagation, &c. How inconceivably small must those organs be! and yet they are, unquestionably, composed of other parts still smaller, and still farther removed from the perception of our senses.

THE NUTMEG.

[The Nutmeg.]

This tree, *Myristica moschata*, grows principally in a group of islands forming a part of the Moluccas, and called the Isles of Band; a cluster which seems to have been thrown up by the sea in some volcanick effort, as there is now upon one of them, named Gonong Api, a volcano, constantly emitting smoke, and often flames. The first island, Banda Neira, is the chief settlement, and contains two forts: its harbour is spacious, but difficult of access. The second island is Banda Lantoir; the third and fourth in importance are Puloway and Pulorum. These four islands were the only places where the cultivation of the nutmeg was allowed by the Dutch, but there are several others under that same government. What these islands produce in superfluities they want in necessaries. The soil was a rich black mould, but it produces no corn, the natives subsisting chiefly upon sago. The nutmeg-tree grows like a pear-tree in form and size; its leaf resembles that of the laurel, being of a bright green colour on the upper surface, and grayish underneath; when bruised it diffuses an aromatick perfume. The flowers are small, white, and have no smell. The fruit is similar to a walnut in form, but more fleshy and full of juice. This external pulp dries up to a crust of a deep yellow colour, which, opening at one side, discloses a membraneous coat of a beautiful red teint, known to us by the name of mace, which lies immediately over the thin and brittle shell of the nutmeg. This is the time to gather the fruit; if left longer upon the tree the mace would get loose, and the nutmeg would lose that oil which preserves it, and which is one of the great excellences of the fruit. The nutmegs which are gathered before they are perfectly ripe are preserved in vinegar or sugar, but are esteemed in Asia only. The nutmeg-tree yields three crops annually, the first in April, which is the best, the second in August, and the third in December, yet the fruit requires nine months to ripen

it; thus the tree bears fruit and blossoms at the same time. After the fruit is gathered the outer covering is stripped off, and the mace having been carefully separated from the kernel, is laid in the sun to dry. The nuts require more preparation; they are spread upon hurdles, and dried for six weeks before a slow fire, in sheds erected for that purpose. After this, they are separated from the shell and thrown into a strong mixture of lime and water, which is a necessary precaution to preserve them from worms: with the same intention the mace is sprinkled with salt water. After this process the fruit is cleaned, and packed up for exportation.

It appears from experience that only one third of the nutmeg-trees bear fruit, but this cannot be discovered until the twelfth or fourteenth year of their growth, therefore they must not be cut down at any earlier age. The fruit-bearing quality is of short duration, as the tree will yield only from the twelfth to the twentieth year, and generally perishes at the age of twenty-four years.

The nutmeg-tree delights in a damp soil overgrown with weeds, and even shaded by large trees, provided it be not stifled by them. Under the shelter of the *Canarium commune* it thrives very well, and bears the cold which sometimes prevails on the tops of the mountains. The nutmeg differs in quality according to the age of the tree, the soil, and the method of culture. The round nutmeg is preferred to that which is oblong, though they are specifically the same fruit. It ought to be fresh, moist, heavy, of a good smell, and an agreeable though bitter flavour, and it should yield an oily juice when pricked. The islands are divided into a number of plantations under the management of a mixed race of Europeans and Indians. The Dutch made use of many illiberal means to secure to themselves the exclusive possession of these valuable productions: many trees they destroyed, reserving sufficient only to produce a certain quantity of nutmegs; but finding the climate of Banda very unhealthy, and that a great number of their servants yearly fell victims to it, they attempted to transfer the culture of this spice to Amboyna; these experiments have, however, proved unsuccessful.

In 1774, the English navigator, Forrest, found in a small island near New Guinea, called Manaswary, a nutmeg-tree, the fruit of which was of an oblong form, but well flavoured. This enterprising man plucked up about a hundred stems of the tree, and planted them in 1776, on the island of Bunwoot, which had just been ceded to him for the East India Company by the Sultan of Mindanno. Bunwoot is situated to the northeast of Borneo, and is a fertile healthy spot, covered with beautiful trees.

Labilliardiere also found the nutmeg-tree upon the little island of Cocos, near the northern extremity of New Ireland. The fruit, which was unripe when he saw it, was oblong. This island is covered with evergreen trees, among which the *Barringtonia speciosa* is conspicuous. It extends its branches laden with flowers horizontally a great way over the sea. There are few cocoanut-trees, but many figs of different kinds. The crew observed floating along the shore, the fruits of several species of *Pandanus* (the screw pine,) of the *Barringtonia*, and of the *Heritiera*, which trees stretched their branches, and even their trunks, in a very remarkable manner over the sea. It is thus, no doubt, that plants are conveyed from one island to another without the assistance of man. Where there are no rills to carry fruits to the sea, the want of moisture prompts these trees to bend over the ocean, and obtain from its evaporation the nourishment they require.

TOMB OF COLUMBUS.

The cathedral church at Seville, which is so magnificent in its exteriour, and so richly furnished within, is highly deserving a place among the noblest edifices of the kind in Europe. It is four hundred and twenty feet in length, two hundred and sixty-three in breadth, within the walls, and one hundred and twenty-six in height. At one angle of the building rises a tower of Moorish workmanship, three hundred and fifty feet high, on the top of which is the Giralda, a brazen image, weighing nearly a tun and a half, yet so admirably poised as to turn with the gentlest breeze.

The ascent to the top of this lofty tower is rendered easy by a spiral path in the inside, of so gentle an inclination that a horse might trot up it, and so wide, that two horsemen may go abreast. While the traveller is lost in admiration of the external grandeur of this pile, he is equally astonished, on entering, to view its internal splendour and wealth. Eighty windows of beautifully painted glass shed their mellow light over fine paintings, noble statues, and altars of solid silver.

Of this metal there is a profusion in this cathedral —the statues of St Isidore and St Leander, as large as life, and a tabernacle for the host, twelve feet in height, adorned with columns, being of silver.

The organ exceeds the famous one at Haarlem in the number of its stops; the former having one hundred and ten, and the latter only sixty. Yet so effective are the bellows of this mighty instrument that, when completely inflated, they will supply the full organ for fifteen minutes. None but they who have heard it can conceive the effect of this astonishing combination of sounds when managed by a master-hand.

But the most interesting object to the intelligent American is the tomb of the great Columbus, the discoverer of the New World. It is in itself unworthy of the great man who sleeps beneath it, consisting of only one stone with this inscription—"*A Castella y Arragon otre mundo des Colom.;*" that is, "To Castile and Arragon Columbus gave another world." But no monument, however splendid, no inscription, however pompous, could have added to the fame of that illustrious man, or atoned for the base ingratitude with which he was treated; indeed, had a sumptuous cenotaph been erected over his remains, it would have ill agreed with the fetters which once loaded his limbs, and which are buried in the same coffin with him.

Besides this noble cathedral, Seville contains twenty-five parish-churches, five chapels, thirty-five monasteries, twenty-nine nunneries, with hospitals, and houses for other religious communities. Many of these convents are remarkable for the beauty of their architecture, and, as well as the churches, contain a profusion of fine paintings, among which are some by the celebrated Murillo.

[Tomb of Columbus, at Seville.]

The city of Seville is of high antiquity, its foundation being ascribed to the Phenicians. The Romans gave it the name of Julia, which has been since corrupted to Sebilla, or Seville; by this people it was embellished with many magnificent edifices, of which scarcely any vestiges remain. While Spain was divided into petty monarchies, this city was under the dominion of different masters, and for a short time was the capital of an independent kingdom: it is now little inferiour in importance to Madrid.

Seville stands in the midst of a rich and fertile plain on the banks of the river Gaudalquiver, and is surrounded by a wall five miles and a half in circumference, defended by one hundred and seventy-six towers. The streets are crooked and dirty, but some of the squares are spacious and magnificent; and in the suburbs are many noble edifices, and a handsome promenade, called Allameda, having three walks, planted with trees, and ornamented with seats and fountains.

The population of Seville is estimated at ninety thousand—less than might be expected from the extent of the city; but two or three families are not crowded into one house, as in Madrid, nor are the houses elevated more than two stories; each house likewise is constructed round the four sides of an open area, in which it is common for the family, in summer, to take up their abode under tents. These areas, or courts, are usually adorned with a profusion of flower-pots, and many of them have fountains, which keep the air pleasingly cool, and, by sprinkling the tiles with which they are paved, prevent them from being heated by the rays of the sun.

Many of the streets of Seville are too narrow to admit a carriage, and the reason given for thus constructing them is, that they afford a shade from the burning rays of the sun, which would be otherwise insupportable.

BATTLE OF BLOODY BROOK.

Every incident connected with the early history of our country, in which the valour of our forefathers was signally displayed, comes down to us with all the interest of self-love, and all the freshness of romance. We love to dwell for reasons better felt than explained, on the deeds of our sires, and the times that tried their souls. There is something hallowed in the associations which gather around us, while reflecting on those instances of devotedness and chivalrous patriotism which distinguished their acts—a feeling of almost devotion. Too many of those deeds have gone down to oblivion "unhonoured and unsung;" and if perchance a fragment of the past is snatched from the grasp of time, it excites in us sentiments the more sacred from the lapse of years.

But there was a period in our country's story beyond that in which our forefathers struggled to make us a free and happy people—a time whose history is but faintly chronicled—when the sufferings of our pioneer ancestors were unwept and unrequited. That epoch would seem to have been swallowed up in the interest of the events which followed; yet those early periods afford us examples of unparalleled sufferance and unmatched heroism.

It was a gloomy era, when the fair face of our country was every where a dark wilderness—when our pilgrim fathers were at all times surrounded by the beasts and the savages of the forest—and when all was rude and cheerless. In the progress of scenes, from that time forward, many and dangerous were the vicissitudes by which they were marked. The eternal solitude which gave place to the busy hand of the settler, and the umbrageous darkness that disappeared from around his humble domicil, were yet the stilly haunts of the Indian. As the plain, in time, was made to yield support for the new-comer, and the cabins of the white men began to thicken along the valley, the red men retired to the mountain. His pleasant places on the uplands, beside the rivers stocked with the scaly tribes yielding to him sustenance, had become occupied. The level patches where he raised his corn, with the beautiful hills where his tribe loved to congregate were in the possession of the stranger. His nearer hunting-grounds were disturbed, and his game began to disappear. Thus dispossessed of his inheritance, and disquieted in his neighbouring solitudes, the primitive and rightful lord of the soil deeply fostered a secret hate against the cause of his grievances. As he gathered around his council fire, and reflected on the stranger's encroachments, or listened to the complaints of his brethren, and the exciting eloquence of his chiefs, his soul began to kindle within him, and his bosom to swell with rage. Already had the numbers of the pale faces become alarming, and their bold hardihood inspired a spirit of dread. The fearful missiles which the stranger so dexterously used, above all, excited his fears, and deterred him from manifesting his resentment. Continued irritation, however, overcomes apparent impossibilities, and gradually wears away the most obstinate objections. The cunning of the savage was deemed a match for his enemy; his fleetness, his distant retreats, and his poisoned arrows, were presented by the orators to force up his courage to the determined point. Nor was it long before the Indian's festering hate broke forth. The war-song now resounded along the mountain side. The fearful yell is heard in the distance, and each settler prepares himself for the worst. And now it was that the direful note of death rang along the Connecticut valley, and deeds of blood began to desolate the land.

For many years was this pleasant valley the scene of heroick struggles—of sufferings, and death. Long did the hardy white man sustain himself against the superiour numbers and wily arts of the savage; but sadly did he pay the cost of his attachment to the land of his choice, and the endearing associations of home. Frequent and deadly were the conflicts in which he engaged with his implacable enemy. Deep and lasting was the mutual hate of the combatants, and as deep and as artful were their schemes of destruction. Victory often crowned the untiring efforts of the foe, when painful captivity or indiscriminate slaughter ensued. To tell of the many murderous deeds and the deep agonies which marked the triumphs of the embittered savage, would long employ the pen, and harrow up the feelings of the soul. To the cruel preseverance of the Indian in this war of extermination, were added the promptings of base cupidity. The Canadian Frenchmen now urged on the brutal force of the not less barbar

ous foe, by their liberal rewards and legalized bounties, for captives and for scalps. Still more powerful motives actuated the red men, while large numbers of the reckless whites joined them in the execution of their most desperate deeds; and it was said that the cruelty and brutality of the Frenchmen far exceeded those of the savage wild man.

It was thus with our forefathers, when an attack was anticipated from combined forces of the Indians on the little nucleus of farm-houses at the present beautiful village of Deerfield, Massachusetts. A little army had collected at Hadley, composed of the hardy peasantry of the valley, determined on decisive and desperate efforts against the common enemy. The produce which had been gathered and housed, at Deerfield, was necessary for the support of this band of determined yeomanry, and for the affirighted families who had there congregated; nor was it desirable that so much valuable sustenance should fall into the hands of the Indians, the more effectually to enable them to continue their bloody warfare. It was therefore resolved, that one hundred young men justly denominated "the flower of the country," should be selected to go with teams, in the face of danger, and transport the rich products of the soil from Deerfield to Hadley. The expedition was cheerfully undertaken by the requisite number of brave youths. Already were their teams loaded and on their way to the place of destination. The watchful enemy had, however, obtained intelligence of the expedition, and, with the greatest secrecy and celerity, collected in fearful numbers on a neighbouring hill, shut out from view by the dense forest with which it was crowned.

Here their eloquent chiefs encouraged them by every effort of language and of gesture, to deeds of bravery and desperation. There plans were matured, and every means devised, which power and stratagem could suggest, to destroy the devoted band, and to capture the treasures in their charge. And now their royal leader, with all the force and enthusiasm which had characterized the most potent warriour and consummate general that the history of savage life had ever revealed, broke forth, and thus revealed his great and impassioned mind:—

"Warriours! see you the treasures of the pale faces—the richest stores of the long knives? See you the young men, few and feeble, that yonder carelessly stroll in the valley? See you *our* numbers, and the brave warriours that stand around you, and feel not your hearts strong? Is not your arm powerful and your soul valiant? And who is he that goes before you? Who will direct you in the ambush and the fight? Is it not he who never knew fear—whose heart is like the mountain, and his arm like the forest-oak—the great chief of the Naragansetts, whose people are like the leaves, and whose warriours are the terrour of the pale faces? Follow him, and all is yours. Each hatchet give a fatal aim—sink deep these knives!—these arrows drink their blood! Away!—to death—our fathers and our homes!"

The wild spirit of the proud and lofty Philip, ran like electricity through the savage horde. Each burned for the affray, and quickly sprang into the trail of his great captain. Silently he glided from the mountain and cowered along the meadow-land that lay in a vale by the roadside.

Here, deeply immersed in the luxuriant wild-grass shrink one thousand warriours, fiend-like exulting in the anticipated victory and slaughter. Now came the train of teams, cautiously guarded as they had been thus far, by the chosen corps, and descended the small hill which conducted them into the green vale traversed by the road, and near which lay the concealed foe, ready to dart on their prey. Tradition says, that here the noble youths, dreaming little of danger from the enemy, rested for the moment, and gathered grapes from the clustering vines that hung thick with their rich fruit by the road. When, "sudden as the spark from the smitten steel," the thousand savage forms sprang from their ambush, and with hideous yells, rushed to the onslaught. The vigorous youths, unterrified by the sudden assault, the yells, or the fearful numbers of their enemy, instantly rallied, and as quickly brought their rifles to their shoulders. They had received the cloud of arrows, as the savages approached within bowshot of their victims, but now, in turn, the fatal lead from a still more deadly weapon made many a warriour bite the ground. The certain aim of the young band had told death to as many of the savage clan. Still onward they pressed, over their dead, and thickly hurled their missiles. Again with deadly aim the fire of the little determined group of whites brought down the foremost of the desperate foe, and threw confusion into their ranks. A gleam of hope broke through the fearful prospect, and for a moment relieved the doubts which the overwhelming numbers and fierce desperation of the savages had inspired. But quickly in front was heard the animating voice of their valiant chieftain, and as quickly did they rally and return the destructive fire. The noble youths, though with half their numbers slain, resolved to sell their lives at fatal cost. Nor was a nerve thrilled with fear, or a heart disposed to falter, as their ultimate fate now became too plainly apparent. Still onward, with brutal force wrought to madness by the example and the thundering voice of the gigantick Philip, pressed the exulting foe.

To the utmost deeds, brave *Lathrop* now inspired the daring band, as each had caught from him the thrilling cry: "Our God!—our homes!—our country, and our sires!" But in an instant, pierced with many arrows, he falls among the slain. The heroick captain, "the bravest of the brave," now fallen, the enemy express their fiendish joy in loud and terrifick yells. The fight thickens and man conflicts with man. The dying groans of the Christian nerves each youthful arm, which still deeper returns successive blows.

Impelled with fury at the destruction which was yet making in their ranks by the almost superhuman efforts of the brave whites, they strove, with all the brutality of fiends, to complete their deadly work. At length, the numbers of the valiant youths was reduced to a solitary few; when the foremost of these on turning to animate his comrades, saw himself supported by seven only of his associates. These, finding all efforts of victory hopeless, and that longer warfare would but add to the scalps of the victors, dashed their weapons in the face of the foe, and attempted to escape. The two who stood last in this unequal contest, the most athletick of the chivalrous corps—bounding over the slain, took a direction to-

ward the Deerfield river, followed by two hundred Indians, hurling with almost deadly precision, their arrows and hatchets. The whizzing of the missiles urged the powerful remnant to their utmost speed.

One of these, plunging into the stream, vainly attempted to reach its opposite bank; pierced by the arrows of the savages, he sunk lifeless to its bottom, while the other running along the shore, screened by the under-brush on its banks, silently sunk into the water. Here, amid a thick and dark cluster of weeds and bushes, he supported himself by the trunk of an old tree lying on the edge of the stream, with his face sufficiently elevated to admit of respiration, until the Indians had relinquished their search for him, continually hearing near him their hasty tramp and fearful yells of disappointment. When all was still, and during the darkness of night, he swam across the river; and, stiff and cold, began his march for Hadley, where he arrived on the following day, the last and only living witness, as tradition says, of the battle of Bloody Brook. Reader, this youth was the writer's grandfather.

Returning to the spot which history has so justly designated as "Bloody Brook," the barbarous enemy, on completing their destruction of life, began that of the dead. The busy scalping-knife, was doing its frightful office, and the naked heads, severed from their lifeless trunks, were dancing high in the air, on points of poles. The sickening sight made the less savage foe revolt. Death had not done its last kind duties, when this infernal sport commenced. The convulsive throb still showed the struggle between life and death. The spouting blood, still warm with life, was seen to gush forth from the gaping wounds, and, trickling along the green sward, find a repository in the gurgling brook near by. The gory rills were fast purpling the little stream, and transporting the red tide down to oblivion—the richest flood that ever rivulet bore. All around was horrour, torture, and death; when suddenly appeared, on the crown of the hill, a large company of white men, who had come from Greenfield with all possible haste to the succour of their brethren. But, alas! it was too late! The scene we have described was presented instead. Filled with rage and madness, this furious band rushed down the hill upon the brutal force, yet floating in blood, and falling like lions among them, made terrible havock. Alarmed at this unexpected assault, the savages sprang, with fear and desperate fleetness from the scene, striving only to escape the death their barbarity so justly merited. But full many a warriour fell by the strong arm of the vengeful white man. Flight alone saved the few remaining enemy.

A sad duty now devolved on the final victors. They dug on the spot the sepulchre which to this day, contains the commingling dust of their youthful brethren, and over its mouth is to be seen a smooth flat stone, the only humble testimonial of posterity. Yes, there by the side of the road leading from the pretty villages we have mentioned, and near the little brook destined to give immortality to the event, may the curious traveller, as he passes through the green fields of the Connecticut valley, see the mound which designates the place where fought and sleep the unhonoured brave. Peace to thy manes, heroick youths! Thy country's history shall preserve thy memory.

Is it not a little curious, among the phenomena of mind, to mark the effect of external objects in recalling long-lost impressions. While standing on the spot thus hallowed by deeds of bravery, and while dwelling on the scenes which the imagination was picturing before me, I was all at once overwhelmed, as if by a sudden rush of light from the darkness of the past. Circumstances, localities—the realities in all the vividness with which they were related to me, when but eight years of age, by my grandsire—started fresh into life. More than thirty years have elapsed since memory recalled one of those impressions, and yet every word that was dropped from the lips of that venerated man—his actions—his very look, while relating to me the affray at "Bloody Brook," came back upon me more freshly than a dream of yesternight. Every incident of that sanguinary fight, than which none in the history of our country was more fatally decisive, came up from the abyss of time, with all the vigour and clearness of present vision. He was then but eighteen years of age—of powerful mould, and great and muscular activity. The thrilling particulars which he described in his venerable age, thus presented themselves to my mind, a short time since, on that consecrated spot, to which neither history nor tradition has ye' done justice.

N. Y. Knickerbocker.

THE ARMY IN THE FIELD.

BY LIEUTENANT G. W. PATTON, U. S. A.

I never see a shadowy plume
Upon a soldier's crest;
But I think of ye, my gallant braves,
Amid the far Southwest.
I never hear the pipe's shrill notes,
Amid the city's hum,
But I see your serried columns form
Where rolls the roaring drum.

A lengthen'd trail ye thrid, my braves;
And difficult its sign,
Thro' hammock, and thro' everglades,
By marsh and tangled vine.
Your homestead is the wilderness,
Your canopy the sky;
And the musick which ye love the most,
Lives in the battle-cry.

They little know, who lightly dwell,
Upon the griefs ye bear,
The task and toil, Oh! weary ones,
Which ye are doomed to share.
'Tis yours to quench the feudal fire,
The elements prolong;
To hunt the footsteps of the fierce;
To wrestle with the strong.

To scorch beneath the vernal sun,
Amid the hurried rout;
To scare the vulture from his feast
Where th' foremost steed gave out;
To seek in vain for gushing spring
Upon a thirsty waste;
To sink amid the mazy wood,
With the homeward path effaced.

'Tis yours to scorn what few deride:
Attempt where all may fail;
To stem the raging of the tide,
The rushing of the gale.
And when your hearts like lava-rock,
Heave like the mountain warm,
'Tis yours to roll unto the shock,
Like the torrent and the storm.

And oh! 'tis yours at midnight hour,
Upon the guarded plain,
To dream of smiles far, far away,
Ye ne'er may see again.
To vanquish Hope—to purchase Fame,
With blood of foe unseen;
Then find a grave without a name,
Beneath the hammock green.

AMERICAN COMMERCE.

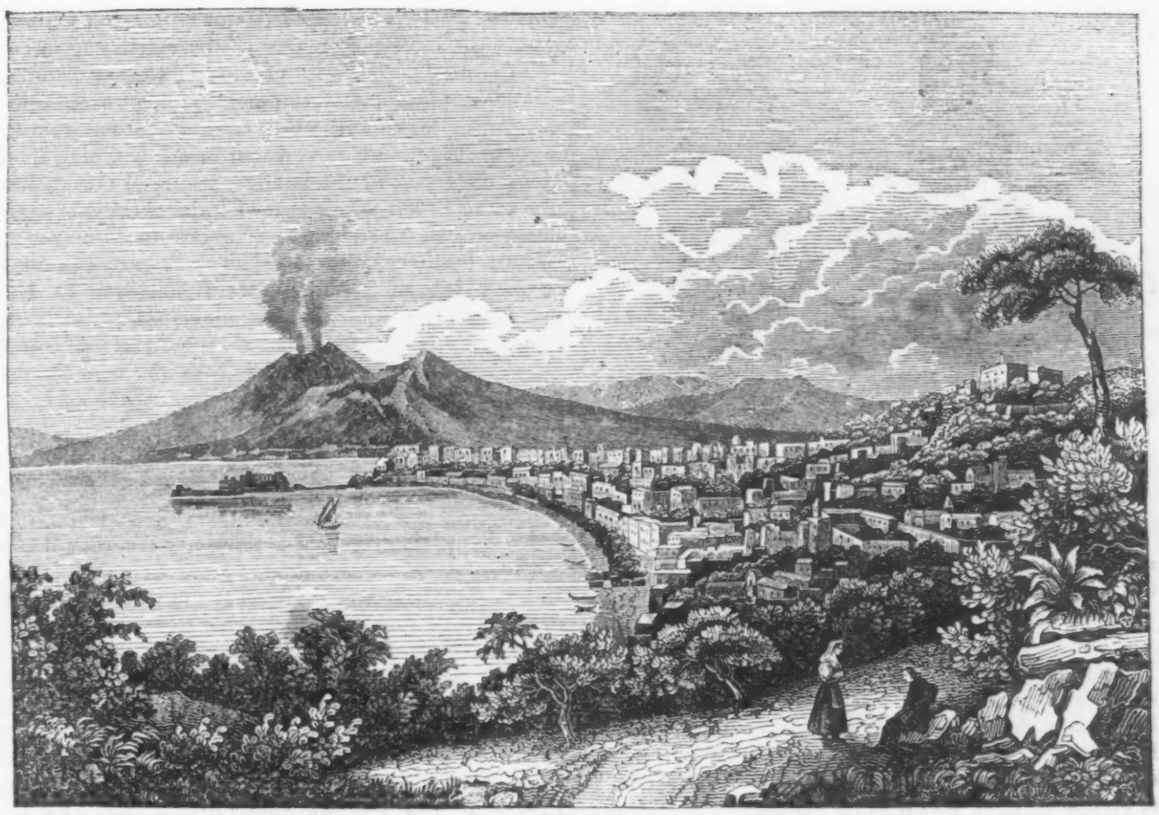
NAPLES.

Naples is the capital of the kingdom of the Two Sicilies. It occupies the site both of ancient Palæpolis Neupolis, though it inherits the name of the latter. At one period, this city was the favourite winter retreat of the luxurious Romans, many of whom had villas on the shores, and amid the romantick recesses of the adjacent mountains. The presence of Horace and Virgil, and their attachment to its delightful scenery, were lasting and honourable distinctions; while the licentious indulgences of Tiberias, and the cruel freaks of Caligula, were its scandal and its scourge. Splendidly situated on the margin of a majestick bay, from which the islands Capri and Ischia rise in bold outline; overlooked and menaced, on the right, by Vesuvius; on the left gently sinking into the arms of the Pausilippo—it seems to revel in the blessings which Heaven pours upon the happy land.

The ancients knew how to appreciate the enchantments of this region, and fables told of a temple and grave of a siren, named Parthenope, situated here; but the fable and the name only denote the charms of this Eldorado. The Neapolitan is still proud of his country; he calls it a piece of heaven fallen upon the earth, or exclaims, with patriotick ardour, "See Naples and die." And, indeed, few regions possess so many advantages. The air is mild, balmy, and salubrious; the heat of summer, except when the sirocco blows, is tempered by the cooling influences of the sea, whose azure mirror attracts and delights the eye, while its bosom affords a bounteous variety of fish; the fields are decked with grain and vines, which wind picturesquely around the elms and noble fruit-trees. Above 350,000 people throng the streets of the city, in which the bustle ceases not, by night or day. The most spacious and magnificent of all the streets, the Toledo, resembles a perpetual fair, and the passenger must be cautious to avoid being run over by the curricoli, or one-horse vehicles, which dart by with the rapidity of lightning. The harbour, which, however, is not very large, swarms with vessels from all quarters of the globe; and the pier, or mole, is always crowded with men, who are either pursuing their business, or are idly assembled around the booth of a pulcinello, or around a juggler or minstrel, and improvisatore.

The fashionable world, especially in the evening, fill the streets, which stretch along the sea and are adorned with stately palaces, with their superb equipages. Close to the shore is the Villa Reale, a royal garden, containing the celebrated group of the Farnese Bull. The prospect over the bay, to Vesuvius and the coasts of Sorreto, is unique. But it is only nature and the activity of its present, with the various memorials of its past existence, that makes Naples and its environs so enchanting. The reflecting traveller, after having contemplated, in Florence and Rome, the wonders of art, and the monuments of proud times that are gone—great even in their ruins, finds in Naples little to gratify, and much to offend his taste for the beauties of art. The luxuriance of nature seems to have been communicated to the style of art, and given it a character of exaggeration. This is true of the architecture, with the exception of the office of finance, in the street called Toledo. The evidences of importance in Naples betray bad taste, in excess of ornament and unsuitable additions, or bear the stamp of insignificance in their baldness and uniformity. Statuary and painting are in no better condition. Musick has been more successfully cultivated. Those ornaments of Rome—obelisks and fountains—appear here only in miserable imitations. Even the publick inscriptions, particularly those of the time of the Spanish dominion, are written in a style of oriental bombast. Among the one hundred and twenty-two churches, (none of which are distinguished for their architecture,) the one hundred and thirty chapels, and one hundred and forty-nine monasteries, that of St. Januarius, or the cathedral, is the principal. It was built in 1299, from the designs of Niccolo Pisano; but the Neapolitans have endeavoured to destroy, as much as possible, its Gothick character. The body of the saint reposes in a subterranean chapel, under the choir. His blood is kept in the splendid chapel of the Treasure, adorned by four altar-pieces, from the pencil of Domenichino. Il Gesu Nuovo is considered the handsomest church in Naples; at least, it has the best dome, though it is overcharged with unmeaning ornament. The church of the rich convent of S. Chiara resembles a dancing-hall, rather than a temple; it formerly contained some frescoes by Giono. S. Domenico is large; S. Filippo Neri, rich in marble and paintings; S. Paola Maggiore shows on its front, the remains of an ancient temple of Castor and Pollux; S. Apostoli is admired; small, but hallowed by the tomb of Sannazzaro, is the church Sta-Maria del Parto in Mergellina, founded by him. The Carthusian monastery S. Martino, situated on a hill, under the castle S. Elmo, enjoys a most delightful prospect, and is, at present, the barracks of the invalids. The whole structure is superb, and the church is ornamented with peculiar richness. Above the monastery is situated the castle of S. Elmo, which commands the whole city, and with its cannon checks the violence of the lazzaroni, of whom there are about 30,000. Naples is also fortified against external attacks, especially by the way of the sea; for to the east lies the Castello Nuovo, and to the west, the Castello del Uovo (so called from its oval shape) extends, on a rock, into the sea.

Among the edifices, the royal palace is distinguished above the rest for its architecture; the place where it is situate is one of the greatest ornaments of Naples. Another royal palace at Capo di Monti, is unfinished, but contains many paintings, and other works of art. The ancient residence of the viceroys of Naples, La Vicaria, has been appropriated to the accommodation of several tribunals, and, in part, converted into prisons. Among the other palaces are the Maddalone, Francavilla, Gravina, Tarsia, which last has a considerable library open to the publick. The most important collections in the arts and sciences are contained in the building of the academy Degli Studi, (Museum Bourbon,) the lower apartments of which, are allotted to ancient statues, of which we shall here mention only the Farnese Hercules, the Farnese Flora, the equestrian statues of the two Balbuses, the Venus, and an excellent Aristides. The second floor contains a valuable collection of Etruscan vases, a gallery of paintings, and the royal library. The university, founded



[View of Naples.]

in 1224, is of some consequence as a building, but of little note as a place of education. It contains several good collections; for instance, a mineralogical cabinet. The botanical garden is gradually improving. There is also an observatory, a royal medical college, a military school, a naval college, an academy of agriculture, manufactures, and arts, a college for the instruction of Chinese and Japanese youth, two Jesuit colleges, &c., and a royal society of sciences.

The number of benevolent institutions is above sixty. Among them are two large hospitals—Degli Incurabili (where, however, sick of all kinds are received) and Della Santissima Annunziata, which is very rich, and receives and provides for foundlings, penitent females, &c. There are five other hospitals, many religious fraternities, and several conservatories, which last were long famous as the seminaries of musick for all Europe. The Albergo dei Poveri, with a school of mutual instruction for four hundred children, is one of the greatest buildings of the kind in Naples, and amusement is the general aim. For the idle populace, there is no want of entertainment, pulcinelloes, musick, macaroni, and room to sleep. For the better classes, there are four theatres, of which the largest, St. Carlo, was burned in 1816, but has been splendidly rebuilt. Besides this theatre, there are the Teatro Nuovo, de' Fiorentini, and St. Carlino.

In respect to musick and representation, they hardly reach mediocrity; but the ballet is magnificent. The nobles are opulent and fond of parade; the citizens are thriving; and the lowest class (the lazzaroni) are, in general, so temperate that, from the cheapness of provisions, they can live with the least pittance, got by work or begging, and reserve something for the divertimenti on the mole, and, if they have no other shelter, trust to the mildness of the climate, and spend the night under the portico of the palace or a church. Compared with the number of inhabitants, the manufactures are unimportant; the artisans have little skill. The furniture made in Naples is clumsy. The best jewellers, tailors, and shoemakers, are foreigners; the best *traiteurs*, Milanese. From the situation of the city, its commerce might be extensive. The bank of the Two Sicilies has a capital of 1,000,000 ducats. Female beauty is rare in Naples, but the men are vigorous and well formed, especially at the age of maturity. In literary cultivation, the Neapolitans are altogether behind the other Italians, though they have many celebrated names.

The character of the people is not so serious as many travellers have represented it. There is much good humour and cordiality, and a temperance worthy of imitation among them; with all their violence, murders are seldom heard of. The immorality is not more than that of other great continental cities; and the love of idleness and pleasure has in some measure its foundation and excuse in the nature of the climate. The costume of the upper classes does not differ materially from that worn by the natives of the rest of Italy, and we select for illustration, (overleaf,) an armed peasant and his wife, the latter engaged in the manufacture of flax.

The environs of Naples are rich in wonders of nature, art, and innumerable remains of antiquity. On the west side of the city is the ridge of the Pausilippo. It is said to owe its name to the effect of its beauty in lulling the sense of grief. Its grotto is

[Neapolitan Peasants.]

an arched way, which the ancients often mention, but which Alphonso I. enlarged, and the viceroy Peter of Toledo paved. In a garden above it is situated the pretended tomb of Virgil, a columbarium, or Roman tomb, with several niches, in which once stood urns. The laurel, which once flourished there, but which had to surrender its foliage to every traveller is gone. Following the road through the grotto of Pausilippo, we come to the lake of Agnano. It is enclosed in a picturesque manner by mountains, of which the one on which is situated the monastery of the Camaldoli is the highest. The prospect from this eminence extends over the whole of Campania Felix, far out over the islands and sea, and is incontestably one of the richest and most delightful in the world. The lake of Agnano has the property of boiling up in some places, but is not, however, hot. In the summer, when all the hemp of the neighbourhood is rotted in the lake, the air is extremely unhealthy. On its banks are the sudatories, or vapour-baths of St Germano, consisting of vaults, from the floor of which a sulphureous vapour issues, and the celebrated Grotta del Cane, the bottom of which is covered with a stratum of carbonick acid gas, in which the guides generally immerse a dog, and draw him out when on the point of suffocating, to recover in the open air. A grotto leads into another romantick valley surrounded by the Leucogean rocks. At the foot of these hills is the Acqua delle Piscianelle, a very warm sulphureous water, issuing from the earth with a loud noise. On the other side of the rocks lies the Solfaterra, a very remarkable volcanick valley, nine hundred feet long, and seven hundred and fifty feet broad. A volcanick mountain was, in all probability, once carried down here, without being entirely extinguished. The ground, which is covered with a whitish clay, and trembles under the feet, is hollow; from every hole and crack, sulphureous vapours issue. The deposites of the native sulphur, in various colours, on the wild rocks, increase the terrifick appearance of this region. On leaving it, and turning towards Pozzuoli, all the charms of southern flowers, and the prospect of the sea, greet the eye. We approach Pozzuoli over the remains of an ancient road, admiring, on the way, the relicks of former splendour, particularly the ruins of a Piscina, (commonly called a labyrinth,) of a great amphitheatre, and of the thermæ, or warm baths. The old Via Campana is studded on both sides with the picturesque ruins of ancient tombs, consisting mainly of columbaria, and still exhibiting traces of painting.

While the country around Naples resembles a flourishing garden, the sea is also adorned with the most beautiful scenes. A sail in the bay of Naples, along the coast, or the islands, is one of the greatest pleasures in the whole tour of Italy. Vineyards, gardens, groves, and villages, alternate in charming variety in Ischia; in their midst rises majestically to to the height of 2356 feet, Mt. Epomeo, or St. Nicola, formerly a volcano; but, since 1302, it has not disturbed the tranquillity of the beautiful island. The sick derive much benefit from the cold mineral springs.

A MOOSE-HUNT.

In the spring of 1833, moose were remarkably abundant in the neighbourhood of the Schoodic lakes; and as the snow was so deep in the woods as to render it almost impossible for them to escape, many of them were caught. About the first of March, 1833, three of us set off on a hunt, provided with snow-shoes, guns, hatchets, and provisions for a fortnight. On the first day, we proceeded fifty miles, in a sledge drawn by one horse, to the nearest lake, where we stopped for the night, in the hut of an Indian named Lewis, of the Passamaquoddy tribe, and who has abandoned the wandering life of his race, and turned his attention to farming and lumbering. Here we saw the operation of making snowshoes, which requires more skill than one might imagine. The men generally make the bows to suit themselves, and the women weave in the threads, which are usually made of the skin of the Karaboo deer.

The next day, we went on foot sixty-two miles farther, when a heavy rain-storm coming on, we were detained a whole day. The next morning we put on snowshoes, and proceeded about thirteen miles, to the head of the Musquash lake, where we found a camp, which had been erected by some lumberers in the winter, and here we established our headquarters. In the afternoon, an Indian had driven a female moose-deer, and two young ones of the preceding year, within a quarter of a mile of our camp, when he was obliged to shoot the old one. We undertook to procure the young alive, and, after much exertion, succeeded in getting one of them, and shut it up in the shed made for the oxen; but as the night was falling, we were compelled to leave the other in the woods. The dogs having killed two fine deer that day, we feasted upon some of their flesh, and upon moose, which certainly seemed to us the most savoury meat we had ever eaten, although a keen appetite is very apt to warp one's judgement in such a case. After supper, we laid ourselves down before the huge fire we had built up, and were soon satisfied that we had at last discovered the most comfortable mode of sleeping.

In the morning, we started off on the track of a moose, which had been driven from its haunt or yard by the Indians the day before; and, although the snow was in general five feet deep, and in some places much deeper, we travelled three miles before we came to the spot where the moose had rested for the night. He had not left his place more than an hour,

when we came to it. So we pushed on faster than before, trusting that ere long we should overtake him. We had proceeded about a mile and a half farther, when he took a sudden turn, which threw us off our track, and when we again found it, we saw that an Indian had taken it up and gone in pursuit of the harassed animal. In a short time we heard the report of a gun, and immediately running up, we saw the moose standing in a thicket wounded, when we brought him down. The animal finding himself too closely pursued, had turned upon the Indian, who fired and instantly ran into the bushes to conceal himself. It was three years old, and consequently not nearly grown, although already about six feet and a half in height.

It is difficult to conceive how an animal could have gone at such a rate, when the snow was so deep, with a crust at the top. In one place he had followed the course of a brook, over which the snow had sunk considerably, on account of the higher temperature of the water, and we had an opportunity of seeing evidence of the great power which the species possesses in leaping over objects that obstruct his way. There were places in which the snow had drifted to so great a height, that you would have imagined it impossible for any animal to leap over it, and yet we found that he had done so at a single bound, without leaving the least trace. As I did not measure these snow-heaps, I can not positively say how high they were, but I am well persuaded that some of them were ten feet.

We proceeded to skin and dress the moose, and buried the flesh under the snow, where it will keep for weeks. On opening the animal we were surprised to see the great size of the lungs and heart, compared with the contents of the abdomen. The heart was certainly larger than that of any animal which I had seen. The head bears a great resemblance to that of a horse, but the "muffle" is more than twice as large, and when the animal is irritated or frightened, it projects that part much farther than usual. It is stated, in some descriptions of the moose, that he is short-winded and tender-footed, but he certainly is capable of long-continued and very great exertion, and his feet, for any thing that I have seen to the contrary, are as hard as those of any other quadruped. The young moose was so exhausted and fretted, that it offered no opposition to us as we led it to the camp; but in the middle of the night we were awakened by a great noise in the hovel, and found that as it had in some measure recovered from its terrour and state of exhaustion, it began to think of getting home, and was now much enraged at finding itself so securely imprisoned. We were unable to do any thing with it for if we merely approached our hands to the openings of the hut, it would spring at us with the greatest fury, roaring and erecting its mane in a manner that convinced us of the futility of all attempts to save it alive. We threw to it the skin of a deer, which it tore to pieces in a moment. This individual was a yearling, and about six feet high. When we went to look for the other, which we had left in the woods, we found that he had "taken his back-track," or retraced his steps, and gone to the "beat," about a mile and a half distant, and which it may be interesting to describe.

At the approach of winter, parties of moose-deer, from two to fifty in number, begin to lessen their range, and proceed slowly to the south side of the hill, where they feed within still narrower limits, as the snows begin to fall. When it accumulates on the ground, the snow, for a considerable space, is divided into well trodden, irregular paths, in which they keep, and browse upon the bushes at the sides, occasionally striking out a new path, so that, by the spring, many of those made at the beginning of winter are obliterated. A "yard" for half a dozen moose would probably contain about twenty acres.

A good hunter, although still a great way off, will not only perceive that there is a yard in the vicinity, but can tell the direction in which it lies, and even be pretty sure of the distance. It is by the marks on the trees that he discovers this circumstance; he finds the young maple, and especially the moose-wood and birch, with the bark gnawed off to the height of five or six feet on one side, and the twigs bitten, with the impression of the teeth left in such a manner, that the position of the animal when browsing on them may be ascertained. Following the course indicated by these marks, the hunter gradually finds them more distinct and frequent, until at length he arrives at the yard; but there he finds no moose, for long before he reaches the place, their extremely acute smell and hearing warn them of his approach, when they leave the yard, generally all together, the strongest leading in one track, or in two or three parties. When pursued they usually separate, except the females, which keep with their young, and go before to break the track for them; nor will they leave them under any circumstances until brought down by their ruthless pursuers. The males, especially the old ones, being quite lean at this season, go off at great speed, and unless the snow is extremely deep, soon outstrip the hunters. They usually go in the direction of the wind, making many short turns to keep the scent, or to avoid some bad passage; and although they may sink to the bottom at every step, they cannot be overtaken in less than three or four days. The females, on the contrary, are remarkably fat, and it is not at all unfrequent to find in one of them a hundred pounds of raw tallow. But let us return to the young buck, which had regained the yard.

We found him still more untractable than the female we had left in the hovel; he had trodden down the snow for a small space around him, which he refused to leave, and would spring with great fury at any one who approached the spot too near; and as turning on snow-shoes is not an easy operation, we were content to let him alone, and try to find one in a better situation for capture, knowing that if we did eventually secure him, he would probably in the struggle injure himself too much to live. I have good reason to believe that the only practicable mode of taking them uninjured, except when they are very young, is, when they are exhausted and completely defenceless, to bind them securely, and keep them so till they have become pacified and convinced of the uselessness of any attempt at resistance. If allowed to exert themselves as they please, they almost always kill themselves, as we found by experience.

On the following day we again set out, and coming across the tracks of two young bucks, which had been started by the Indians, we pursued them, and

in two or three miles overtook them. As it was desirable to obtain them as near the camp as possible, we attempted to steer them that way. For a while we succeeded very well in our scheme, but at last, one of them, after making many ineffectual attempts to get another way, turned upon his pursuer, who, finding himself not very safe, felt obliged to shoot him. His companion, who was a little more tractable, we drove on a short way, but as he had contrived to take many turnings, he could approach us on his back-track too swiftly, so that we were compelled to shoot him also. We "dressed" them, taking with us the tongues and muffles, which are considered the most delicate parts.

We had not walked more than a quarter of a mile, when we perceived some of the indications before mentioned, which we followed for half a mile, when we came across a yard, and, going round it we found where the moose had left it, though we afterward learned that we had missed a fine buck, which the dogs, however, afterward discovered. We soon overtook a female with a young one, and were not long in sight of them when they stood at bay. It is really wonderful how soon they beat down a hard space in the snow to stand upon, when it is impossible for a dog to touch them, as they stamp so violently with their fore feet, that it is certain death to approach them. This moose had only one calf with her, and on opening her we perceived that she would only have had one the next year, though the usual number is two, almost invariably a male and a female. We shot them with a ball through the brain.

The moose bears a considerable resemblance to the horse in his conformation, and in his disposition a still greater, having much of the sagacity as well as viciousness of that animal. We had an opportunity of observing the wonderful acuteness of its hearing and smelling. As we were standing by one, he suddenly erected his ears, and put himself on the alert, evidently aware of the approach of some person. About ten minutes after, one of our party came up, who must have been at the time at least half a mile off, and the wind was from the moose towards him.

This species of deer feeds on the hemlock, cedar, fir, or pine, but will not touch the spruce. It also eats the twigs of the maple, birch, and soft shoots of other trees. In the autumn they may be enticed by imitating their peculiar cry, which is described as truly frightful. The hunter gets up into a tree, or conceals himself in some other secure place, and imitates this cry by means of a piece of birch-bark rolled up to give the proper tone. Presently he hears the moose come dashing along, and when he gets near enough, takes a good aim, and soon despatches him. It is very unsafe to stand within reach of the animal, for he would certainly endeavour to demolish you.

A full-grown male moose is said to measure nine feet in height, and with his immense branching antlers presents a truly formidable appearance. Like the Virginian deer and the male karaboo, they shed their horns every year about the beginning of December. The first year their horns are not dropped in spring. When irritated, the moose makes a great grinding with his teeth, erects his mane, lays back his ears, and stamps with violence. When disturbed, he makes a hideous whine, much in the manner of the camel.

In that wild and secluded part of the country, seldom visited but by the Indians, the common deer were without number, and it was with great difficulty that we kept the dogs with us, as they were continually meeting with "beats." In its habits that species greatly resembles the moose. The karaboo has a very broad flat foot, and can spread it on the snow to the fetlock, so as to be able to run on a crust scarcely hard enough to bear a dog. When the snow is soft, they keep in immense droves around the margin of the large lakes, to which they betake themselves when pursued, the crust being much harder there than elsewhere. When it becomes more firm, they strike into the woods. As they possess such facility of running on snow, they do not require to made any yards, and consequently have no fixed place in the winter. The speed of this animal is not well known, but I am inclined to believe it much greater than that of the fleetest horse.

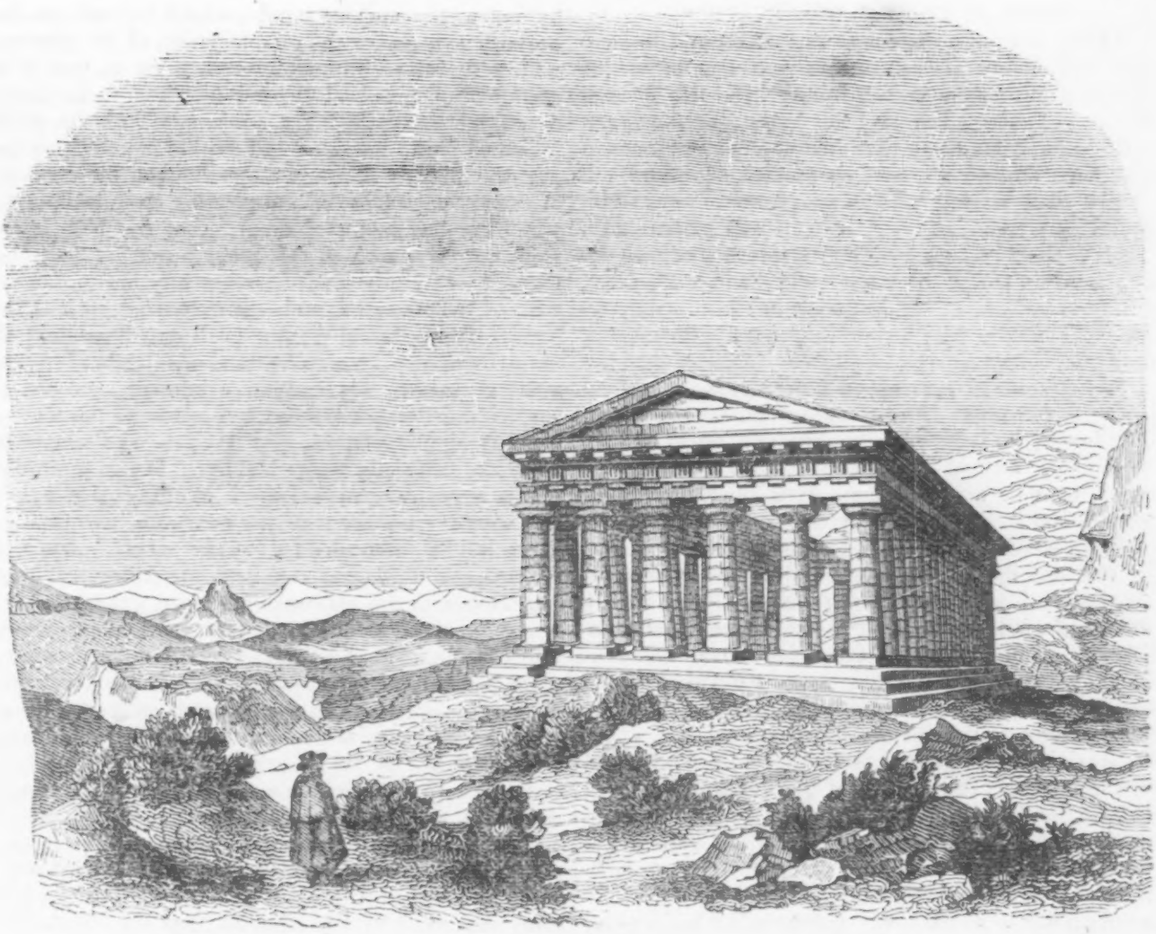
In our camp we saw great numbers of crossbills, grosbeaks, and various other small birds. Of the first of these were two species, which were very tame, and alighted on our hut with the greatest familiarity. We caught five or six at once under a snow-shoe. The pine-marten and wildcat were also very abundant. Audubon.

ARCHITECTURAL MONUMENTS.

TWELVE leagues west of Palermo, at some distance from the sea, in a barren and truly desolate country, the traveller will observe, at the base of a narrow gorge, numerous blocks of stone, where he can still discern traces of human art, but which give no intimation as to what might have been their former destination. One ruin, however, is sufficiently perfect to authorize the opinion, that it belonged to the theatre. These ruins which are now vaguely termed *Barbara*, are all that remain of one of the most powerful cities of Sicily. Founded by the companions of Æneas, and perpetuating the memory of its Trojan origin by the names of Scamander and Simois, given to the two rivers which bathe it with their waters, Segesta, sometimes termed Ægesta, in the early periods of the Roman era, rivalled even Syracuse in grandeur. About three hundred years before the Christian era, Agathocles, tyrant of Syracuse, to punish Segesta for taking part with the Carthaginians against him, destroyed it: the walls were overthrown, the inhabitants were massacred, and to perpetuate the memory of this horrid event, the term, "CITY OF VENGEANCE," was applied to the ruins. The Segestians, however, had so many resources, that they soon effaced all traces of this calamity; a new city sprung up, and resumed its rank among the capitals of Italy.

After many centuries of prosperity, the Segestians were committed to the fire and sword by the Saracens, and this time, the injury was irreparable, for Italy was now exhausted. But by a singular contrast, near these ruins, rises the most imposing, the most ancient, and the best-preserved monument of Sicily.

On approaching the ruins of Segesta from the sea, the eye is fatigued by the barren rocks, and the ab-



[Temple of Segesta.]

sence of all picturesque beauty in the landscape. We look in vain for any traces of a habitation, when suddenly on the summit of a far-distant hill, a majestick colonnade is observed. This building stands above Segesta, on a promontory; its form is that of a regular parallelogram, one hundred and seventy-five feet long by seventy-three feet broad; it is composed of thirty-six columns, twelve of which are placed on each of the two longest faces, and six on each of the extremities. These columns are of the Dorick order and gradually diminish towards the top; they are twenty-eight feet high, and six feet in diameter; they support an entablature about eight feet high; which is ornamented by a very prominent cornice. At the two extremities, the monument presents a front, the angles of which are very obtuse, and there is no reason to think that the space existing between the columns was ever closed, or that there was ever any interiour within the colonnade: places for the cornices of the roof, however, still exist, but of this, as well as of the pavement, there are now no traces. The material, used in the construction of this building, is common limestone, which is encrusted with shells: but its teint is a bright yellow, and it is interspersed with veins, so that when seen from a distance, the columns appear to be formed of marble. Its state of preservation is extraordinary; the sharp edges of the stones are yet firm.

At the end of the last century, the lovers of antiquity were fearful lest the symptoms of decay then presented by this building, should rob them of this magnificent monument of architecture; but happily, remedies were applied in time, and this noble specimen of art was preserved without being disfigured by modern repairs.

More perfect than most of the other monuments of Sicily, the beautiful ruin of Segesta seems to be of a more recent date; but it is more ancient than any others. When we compare it with other ruins, we find that the architecture of it is different from all of them; it belongs neither to the Greek nor Roman school; and hence, we must look for its origin to the earliest periods, and believe that this noble edifice was built by the descendants of the companions of Æneas, and that it is therefore three thousand years old. It was doubtless a religious edifice, but whether consecrated to Venus, Ceres, or Diana, it is impossible to say; and the monument is therefore simply termed the "Temple of Segesta."

Anecdote of Alcibiades.—This celebrated Grecian statesman and general had a very handsome dog, of prodigious size, which cost him seventy minea, (about seven hundred and ten American dollars,) and one day caused his tail, which was his greatest beauty, to be cut off. His friends censured him very much on this account, and said the whole city blamed him exceedingly for spoiling the beauty of so very handsome a creature. "This is the very thing I wanted," says he with a smile; "I would have the Athenians discourse about what I have done to my dog, that they may not entertain themselves with saying worse things about me."

POPULAR MEDICAL OBSERVATIONS.

Much has been written of late years on the good and bad effects of the various products of vinous fermentation on the human frame. But the greater number of our readers may not know what has been written; and we think that the subject has not, even yet, been enough *obtruded* on publick attention.

We shall state in plain terms, divesting our style, as far as we can, of every obscurity or technicality, what is their effect; how that effect is modified by the form in which they are used; when they are likely to be useful; when they must necessarily do harm; and how their bad effects may be best counteracted. And if we can succeed in doing this, we do not despair of serving, in some degree, the great cause of sobriety. These are not the days in which people can be induced either to use, or to refrain from using, any of the gifts of Nature or of Art by mere words. People now-a-days think for themselves, and it is to their unbiased common sense, that our observations will be addressed.

The effect of all the various forms of the stimulating products of fermentation depends almost wholly on the alcohol (ardent spirits—spirits of wine) they contain, its influence being modified, covered, diminished, according to the quantity and the kind of the other principles with which it is combined. Now, alcohol acts on the human body as a stimulant. It excites all the organs of the body into preternatural activity; makes the heart beat quicker and stronger; causes the blood to be driven more rapidly through the system; and causes a greater flow of the various secretions—for a time: so long as its influence lasts. When it is expended, there is none of its strength left to nourish, or to support the body; but, on the contrary, a degree of languor or exhaustion remains, as the consequence of the excitement it had produced; and this languor generally bears some proportion to the amount of excitement that had preceded it.

Let us illustrate this. How often does a man, worn out by the toils, or harassed by the cares of business, jaded in mind, or exhausted in body, or both, take his wine more freely than usual. He finds that each glass takes off more and more the feeling of exhaustion, exhilarates his spirits, drowns his anxieties, deadens the sense of his disappointments, and brightens his hopes. He goes on drinking, and the excitement increases. His animal passions are now uncontrolled, for his judgment is overpowered, and his moral feelings are prostrated. He goes on drinking, almost mechanically, until all his powers of mind, and his command over his bodily organs, are steeped in lethargy, or temporarily lost, and he is in a state of powerless drunken stupor. By-and-by, his senses return, his mental and bodily powers are partially restored; but his mind is confused, and his body enfeebled. He rallies still farther, but his spirits are dreadfully low, his mind irritable to a piteous degree, and his corporeal powers are worn out.—Yet this victim to the abuse of stimulants had looked on wine as the means of relieving his depressed mind and exhausted body: he had used it to *drown* his *cares*, whereas he is many times worse than he was yesterday, before he had entered on his debauch. And why? The stimulus has exhausted his vital energies by undue excitement; his nervous system is robbed of its powers by overwork; and his mind—which depends on the nervous system for the manifestation of its powers, which is linked, intimately linked to it, which is strong when it is healthy, and ill when it is disordered, which sympathizes constantly with the state in which it is—his mind suffers, his mental powers pay the penalty of the wrongs he has inflicted on his material organs, of the goading and lashing to which he has subjected them. And the body may well be compared to the horse; it must, like the horse, be carefully tended, sufficiently but not overworked, well-trained, and regularly used, or it is injured. But—should we not push our illustration of the evils of the abuse of stimulants farther? The man, to relieve his excessive languor, and irritable feelings, has once again recourse to the stimulus. It again relieves, and excites, and stupefies him; and indirectly wears him out. Is this a picture that is never seen in real life? Would that it were! But we have neither time nor space for moralizing. Well, let us look forward to the event. Are the alternations of languor, excitement, stupor, all that can happen to the unfortunate? No! a time comes, it may be near, it may be distant, but come it must, when the functional disturbance leads to, and causes alterations in the structure of some of his organs. This may take place in the stomach, or in the liver, or in the lungs, or in the heart, or in the brain, or in more than one of these organs; and the wretched being dies from his complaint—it may be consumption, or it may be mania—a miserable specimen of the extremes to which human nature can be reduced, that might extract sympathy, and extract pity, from the heart of the most temperate. It has been justly remarked by Dr. Eliotson, that the exhibition of such a man's liver, or lungs, or brain, would be the most effectual lesson to the drunkard, that could be given to him.

We have, we confess, given an extreme, but we maintain it to be no uncommon case, of the rise, progress, and effects of excessive drinking. We must, to do all we can, give some less glaring proof of its dangers.

A man is young, strong, and healthy. He has some business, or pursuit, to engage a great part of his time and attention, and he neglects exercise, perhaps eats more than will satisfy nature's wants, and his stomach gets out of order. He, perhaps doubtingly, tries an alcoholick stimulant. It seems to do him good; he feels better; and no unpleasant consequences result. The next day, he repeats the dose, and the same agreeable effects are produced. He goes on; the stimulus becomes necessary to him, necessary to his appetite, to his digestion, to his bodily or mental powers, to his sleep, in fact, needful to keep him in comfortable health. Well, says the reader, and can there be any harm in this? Wait awhile—we shall see. By-and-by, in some weeks, perhaps it may be months, the dose has lost some of its effects, and must be increased; the habit creeps on him, and he finds it necessary to take a second dose before bedtime. He goes on, and on; until the quantity, at first trifling, becomes considerable; and the result is easily foretold. But let us suppose, that he does not inordinately increase the dose: he is perhaps aware of the evil consequences of doing so, and has resolution enough to refrain. Yet he goes on; and he thinks—for we will sup-

pose him to think on the subject, and yet this is what we are certain, few do—he thinks that he takes this without risk. Now, before going on, we will just ask the reader what is it that makes him want a stimulus at all? It is either that he uses his mind to much, or his body too little—one, or both; or that he takes more food into his stomach than is required by the wants of his system; or that he takes too little, or too much sleep. Any one of these must be said to be wrong, and we are prepared to argue the point, that the man, who feels that he cannot do without habitually taking to some alcoholick stimulant, has erred in some one of these points. To return: we have watched such persons for years; we have even seen with surprise, how much their constitutions would endure; they have been, to all appearance, in perfect health, they have been strong and active, have had good appetites, a very little impaired digestion, and their secretions have been free. But, mark, reader! in every instance a time has come, or, if not yet come, we are sure that it is coming, when the accumulated mischief will show itself, either in the breaking up of the constitution, or the cutting short the thread of life, by the accession of acute disease; or, if this latter does not end in death, it produces a lingering and doubtful convalescence. We have often had proofs, that to such individuals an occasional and an early attack of active illness ought to be regarded as a blessing; not only because it and the necessary remedial measures relieve the overloaded and unduly excited state of the system; but because it acts as a warning of the evils to be dreaded. A course of long and uninterrupted good health in the man who unduly stimulates his system, can only be likened to one who is walking over a tract of bog-land, the dryness and seeming firmness of which lead him on without doubt or suspicion, though every succeeding step may plunge him into more than his own depth of mire.

The frame of man was, no doubt, constituted for, and adapted to undergo, a certain amount of labour, a certain amount of intellectual exertion, and to take a certain amount of simple nourishment. We may say, and possibly not without some show of justice, that civilized life has induced so artificial a constitution, so artificial a habit of body, that although stimulating liquids, and a great variety of food, were not adapted to the natural state of man, yet they may be adapted to his artificial state. But it may be relied on, that it would be well if people lived in reference to the state in accordance with which their frame was constructed, and their several organs were fashioned. Man was created for labour, and exercise cannot be neglected without certain risk; man was so formed as that his diet should be simple; and the diet cannot be various and the very reverse of simple, without an almost certainty of eventual harm.

We look upon stimulants and exercise as two great opposites, which in a great degree neutralize each other. If a man undergoes a disproportioned amount of bodily exertion, he will commonly bear an equally disproportioned quantity of stimulants, without injury or risk of injury; if a man takes too much of the stimulating products of fermentation, or an undue quantity of food, there is no better mode of counteracting its influence than *working it off*. We feel certain, that if this principle were universally known to people, and as universally acted up to by them, the good that would result from it would be immense. If men felt that to take a single glass of any fermented or distilled liquor with impunity, they must take so much more bodily exertion as would counteract its influence, and if they acted up to this conviction, we should see fewer of the bloated victims to repletion, fewer of the emaciated, bleareyed, squalid victims to intemperance, than now meet our eyes in all ranks of society, from the aristocratick winebibber to the overfed burgher; from him to the ale-drinking mechanick; from him to the gin-drinking indescribable.

If the drinking of some kind of stimulating liquid is to be habitually indulged in, there can be no question that the ale and porter drinker runs least risk, the wine-drinker more, and the spirit-drinker most. This fact is easily and well illustrated by another, which is so well known as almost to deserve the name of a *maxim*; so long as a man has a healthy appetite for food, and can take an average quantity of it, drink is less hurtful to him; it is when he loses his appetite, and can eat very little food, that drink injures him most. Now, ale and porter contain a rather large quantity of mucilaginous, bitter, and other matters in combination with the spirit, which in some degree counteract its irritating and deleterious effects. We should feel disposed to lay most stress on the bitter that ale and porter contain; this sooths the irritation of the stomach produced by the spirit, while the mucilaginous, the extractive, and other ingredients, nourish and give tone to the system. The good effect of the bitter that ale and porter contain will be self-evident from the fact, that there is no medicine which so relieves, and sooths, and gives power to the languid debauchee as the vegetable bitters. But ale and porter, from their containing so large a quantity of matters mixed with the spirit, necessarily require more digestion than wine or brandy, &c., and they are, therefore, justly said to be less suited to the stomach that is labouring under indigestion than either wines or spirit. But this observation does not apply to the healthy, and such should decidedly give the preference to malt-liquors. These, however, do certainly require more *working off* than wines or spirits stand in need of; on the same principle that a man who eats meat twice a day ought to take, and, if he is to keep well, must take, more exercise than the man who eats animal food only once a day. The degree of the exercise must depend on the quantity of malt-liquor that is made use of. There are two sets of men, who are often adduced as instances of the impunity with which malt-liquors in large quantities may be taken. We allude to the brewers' dray-men, and the coal-heavers of London. The quantity that many of these men men take every day amounts, we are credibly informed, to many quarts. They usually look healthy and strong, but it is forgotten by those who use them as examples of the *good effects* (?) of ale and porter-drinking, that these men take a very great deal of exercise, have to undergo a great deal of bodily labour, and are the greater part of their time in the open air. The people who use this argument are not those who are witnesses to the effect of a common inflammatory attack, or a severe bruise, or a lacerated wound, or a fractured

bone, on such habits. They are not those who find that such men will not bear the depletion that their ailment indicates; they are not those who find, that instead of the lancet, they must use opium; and instead of restricting them to low diet they must allow a fair proportion of nourishing food; they are not those who see their disorders run with fearful rapidity into incurable disease, and the injuries often converted by their bad habit of body, from simple cases that in healthy systems hardly require treatment, into serious or fatal ones. The full habit of body, the florid almost swollen face, the corpulent belly, and fat—not brawny—extremities, are not, to the eyes of those who are the only real judges, indices of sound health, of a really unimpaired constitution. That man only is in good health, who recovers from the simple accidents incidental to his occupation, and from the simple disorders incidental to his humanity, and the climate that he lives in, and who can bear the treatment that those disorders or those accidents demand. We have dwelt on this subject at so great a length to remove a very popular, and a very mischievous fallacy with regard to malt-liquors.

DRESS OF THE MOOSLIM EGYPTIANS.

In general, the Mooslim Egyptians attain the height of about five feet eight, or five feet nine inches. Most of the children under nine or ten years of age have spare limbs; but, as they grow up, their forms rapidly improve: in mature age, most of them are remarkably well proportioned; the men, muscular and robust; the women, very beautifully formed and plump; and neither sex is too fat. I have never seen corpulent persons among them, excepting a few in the metropolis and other towns, rendered so by a life of inactivity. In Cairo, and throughout the northern provinces, those who have not been much exposed to the sun have a yellowish, but very clear complexion, and soft skin; the rest are of a considerably darker and coarser complexion. The people of Middle Egypt are of a more tawny colour, and those of the more southern provinces are of a deep bronze or brown complexion—darkest towards Nubia, where the climate is hottest. In general, the countenance of the Mooslim Egyptian (I here speak of the *men*) is of a fine oval form; the forehead, of moderate size, seldom high, but generally prominent: the eyes are deep sunk, black, and brilliant: the nose is straight, but rather thick: the mouth, well formed: the lips are rather full than otherwise: the teeth, particularly beautiful: the beard is commonly black and curly, but scanty. I have seen very few individuals of this race with gray eyes; or rather, few persons supposed to be of this race; for I am inclined to think them the offspring of Arab women by Turks or other foreigners. The Fellaheen, from constant exposure to the sun, have a habit of half-shutting their eyes: this is also characteristick of the Bedawees. Great numbers of the Egyptians are blind in one or both eyes. They generally shave that part of the cheek which is above the lower jaw, and likewise a small space under the lower lip, leaving, however, the hairs which grow in the middle under the mouth; or, instead of shaving these parts, they pluck out the hair. They also shave a part of the beard under the chin. Very few shave the rest of their beards, and none their mustaches. The former they suffer to grow to the length of about a hand's breadth below the chin (such, at least, is the general rule, and such was the custom of the Prophet;) and their mustaches they do not allow to become so long as to incommode them in eating and drinking. The practice of dying the beard, is not common; for a gray beard is much respected. The Egyptians shave all the rest of the hair, or leave only a small tuft (called *shoosheh*) upon the crown of the head. This last custom, (which is almost universal among them,) I have been told, originated in the fear that if the Mooslim should fall into the hands of an infidel, and be slain, the latter might cut off the head of his victim, and, finding no hair by which to hold it, put his impure hand into the mouth, in order to carry it; for the beard might not be sufficiently long. With the like view of avoiding impurity, the Egyptians observe other customs, which need not here be described. Many men of the lower orders, and some others, make blue marks upon their arms, and sometimes upon the hands and chest, as the women, in speaking of whom this operation will be described.

The dress of the men of the middle and higher classes consists of the following articles. First, a pair of full drawers (in Arabick, *libas*) of linen or cotton, tied round the body by a running string or band, (called *dikkeh* or *tikkeh*,) the ends of which are embroidered with coloured silks, though concealed by the outer dress. The drawers descend a little below the knees, or to the ankles; but many of the Arabs will not wear long drawers, because prohibited by the Prophet. Next is worn a shirt (*ckamees*) with very full sleeves, reaching to the wrist: it is made of linen, of a loose, open texture, or of cotton stuff, or of a mixture of silk and linen or cotton, in stripes, but all white. Over this, in winter, or in cool weather, most persons wear a *soodeyree*, which is a short vest of cloth, or of striped coloured silk and cotton, without sleeves. Over the shirt and the sodeyree, or the former alone, is worn a long vest of striped silk and cotton (called *ckuftan*, or more commonly *ckooftan*,) descending to the ankles, with long sleeves extending a few inches beyond the fingers' ends, but divided from a point a little above the wrist, or about the middle of the fore-arm; so that the hand is generally exposed, though it may be concealed by the sleeve when necessary; for it is customary to cover the hands in the presence of a person of high rank. Round this vest is wound the girdle (*hhezam*,) which is a coloured shawl, or a long piece of high-figured muslin. The ordinary outer robe is a long cloth coat, of any colour, (called by the Turks *joobbeh*, but by the Egyptians *gibbeh*,) the sleeves of which reach not quite to the wrist, as is seen by the foremost figure of the first cut. Some persons also wear a *benesh*, or *benish*; which is a robe of cloth, with long sleeves like those of the ckooftan, but more ample as is seen in the second figure of the same cut: it is, properly, a robe of ceremony, and should be worn over the other cloth coat; but many persons wear it *instead* of the gibbeh. The head-dress consists, first, of a small, close-fitting cotton cap, (called *tackeeyeh*, or *arackeeyeh*,) which is often changed; next, a *turboosh*, which is a red cloth cap, also fitting closely to the head, with a tassel, of dark blue silk at the crown; lastly a long piece of white muslin, generally figured,

[Men of the Middle and Higher Classes.]

or a Kashmeer shawl, which is wound round the turboosh. Thus is formed the turban, or *emameh*. The Kashmeer shawl is seldom worn excepting in cool weather. Some persons wear two or three turbooshes, one over another. A *shereef* (or descendant of the Prophet) wears a green turban, or is privileged to do so; but no other person; and it is not common for any but a shereef to wear a bright green dress. Stockings are not in use; but some few persons, in cold weather, wear woollen or cotton socks. The shoes (*murkoob*) are of thick red morocco, pointed and turning up at the toes. Some persons also wear inner shoes (called *mezz*, or more properly, *mezd*,) of soft, yellow morocco, and with soles of the same: the murkoob are taken off on stepping upon a carpet or mat; but not the mezz: for this reason, the former are often worn turned down at the heel.

On the little finger of the right hand is worn a seal-ring, (*khatim*,) which is generally of silver, with a cornelian, or other stone, upon which is engraved the wearer's name: the name is accompanied by the words "his servant," (signifying "the servant, or worshipper of God,") and often by other words expressive of the person's trust in God, &c. The Prophet disapproved of gold; therefore few Mooslims wear gold rings; but the women have various ornaments (rings, bracelets, &c.) of that precious metal. The seal-ring is used for signing letters and other writings; and its impression is considered more valid than the sign-manual. A little ink is dabbed upon it with one of the fingers, and it is pressed upon the paper—the person who uses it having first touched his tongue with another finger, and moistened the place in the paper which is to be stamped. Almost every person who can afford it has a seal-ring, even though he be a servant. The regular scribes, literary men, and many others, wear a silver, brass, or copper *dawayeh*, which is a case with receptacles for ink and pens, stuck in the girdle. Some have, in the place of this, or in addition to it, a case-knife or a dagger.

The Egyptian generally takes his pipe with him wherever he goes, (unless it be to the mosque,) or has a servant to carry it, though it is not a common custom to smoke while riding or walking. The tobacco-purse he crams into his bosom, the ckoofan being large, and lapping over in front. A handkerchief, embroidered with coloured silks and gold, neatly folded, is also placed in the bosom. Many persons of the middle orders, who wish to avoid being thought rich, conceal such a dress as I have described by a long black gown of cotton, similar to the gown worn by most persons of the lower classes.

[Men of the Lower Classes.]

The costume of the men of the lower orders is very simple. These, if not of the very poorest class, wear a pair of drawers, and a long and full shirt or gown of blue linen or cotton, or of brown woollen stuff, (the former called *'eree*, and the latter *zaaboot*,) open from the neck nearly to the waist, and having

wide sleeves. Over this, some wear a white or red woollen girdle. Their turban is generally composed of a white, red, or yellow woollen shawl, or of a piece of coarse cotton or muslin, wound round a turboosh, under which is a white or brown felt cap, (called *libdeh*;) but many are so poor as to have no other cap than the libdeh—no turban, nor even drawers, nor shoes, but only the blue or brown shirt, or merely a few rags, while many, on the other hand, wear a soodeyree under the blue shirt; and some, particularly servants in the houses of great men, wear a white shirt, a soodeyree, and a ckooftan or gibbeh, or both, and the blue shirt over all. The full sleeves of this shirt are sometimes drawn up, by means of cords, which pass round each shoulder and cross behind, where they are tied in a knot. This custom is adopted by servants, (particularly grooms,) who have cords of crimson or dark blue silk for this purpose. In cold weather, many persons of the lower classes wear an 'abbayeh, like that before described but coarser; and sometimes, instead of being black, having broad stripes, brown and white, or blue and white, but the latter rarely. Another kind of cloak, more full than the 'abbayeh, of black or deep blue woollen stuff, is also very commonly worn: it is called *diffeeyeh*. The shoes are of red or yellow morocco, or of sheepskin.

USEFUL ARTS.

Dying is a chymical art, and consists in fixing upon cloths of various kinds any colour which may be desired, in such a manner as that they shall not easily undergo any alteration, by the agents to which the cloth is ordinarily exposed. The chief materials or stuffs to be died are wool, silks, cotton, and linen; of which the former two are more easily died than the latter.

Wool, in its preparation for dying, requires to be cleansed, by scouring, from a fatty substance, called the *yolk*, which is contained in the fleece. This is done by means of a weak alkaline solution, which converts the yolk into soap. Urine is commonly employed, on account of its cheapness; the ammonia it contains being sufficient to remove the grease.

Silk, when taken from the cocoon, is covered with a kind of varnish, which, because it does not easily yield either to water or alcohol, requires also the aid of a slight portion of alkali. Much care is necessary, however, in this operation, since the silk itself is liable to be corroded and discoloured. Fine soap is commonly used; but even this is said to be detrimental; and the white China silk, which is supposed to be prepared without soap, has a lustre superiour to the European.

The preliminary process of washing is intended to render the stuff to be died as clear as possible, in order that the aqueous fluid, to be afterward applied, may be imbibed, and its contents adhere to the minute internal surfaces.

Another preparation, and one which constitutes, in reality, an important part of the dying process, consists in applying to the stuff, a material to which it adheres; and afterward the desired colour is obtained by the application of another substance. We might die a piece of cotton black, by immersing it at once in ink; but the colour would be neither good nor durable, because the particles of precipitated matter are not sufficiently comminuted to enter the cotton, or to adhere to it firmly. But, if the cotton be soaked in an infusion of galls, then dried, and afterward immersed in a solution of sulphate of iron, the acid of galls being every where diffused through the fabrick, it will receive the particles of oxyde of iron, at the very instant of their transition from the fluid to the solid state; by which means a perfect covering of the black, inky matter, will be applied in close contact with the surface of the most minute fibres of the cotton.

The name of *mordant* is applied to those substances which unite with the different stuffs, and augment their affinity for the various colouring matters. There exists a great number of mordants; some, however, are very feeble in their activity, while others are attended with too much expense for common stuffs; some alter the colours which they are intended to combine, or modify their shades: hence it results, that there are but a small number which can be employed. These are alum, acetate of alumine, muriate of tin, nutgalls, &c.

The mordant is always dissolved in water, into which the stuffs to be died are plunged. If the mordant be universally applied over the whole piece of goods, and this be afterward immersed in the die, it will receive a tinge over all its surface; but if it be applied only in parts, the die will strike in those parts only. The former process constitutes the art of *dying*, properly so called; and the latter the art of printing cottons, or linens, called *calico-printing*.

In the art of printing piece goods, the mordant is usually mixed with gum or starch, and applied by means of blocks or wood engravings, in relief, or of copper plates, and the colours are brought out by immersion in vessels filled with suitable compositions. The latter fluids are termed *baths*. The following are the processes usually adopted, when alum is the mordant employed.

1. *Alum mordant for silk.* Into water containing the sixtieth part of its weight of alum, at the ordinary temperature of the air, the silk is plunged, and allowed to remain for twenty-four hours, when it is withdrawn, drained, and washed. If the liquid is warmed, it is found that the silk absorbs less of the mordant, and that, of course, it combines less easily with the colouring matter, besides losing, in part, its natural gloss.

2. *Alum mordant for wool.* When it is wished to combine wool with this mordant, after its cleansing has been effected, it is plunged into a boiling solution composed of eight or nine hundred parts of water, and twenty-five of alum, where it is allowed to remain during two hours; when it is taken out, suffered to drain, and washed.

Frequently, a little cream of tartar is added in this process, in order to engage the excess of acid in the alum, as well as the portion arising from a slight decomposition of the alum by the oily matter of the wool.

3. *Alum mordant for cotton, hemp, and flax.* This operation is effected by plunging the body to be imbued with this mordant into water slightly warmed, and which contains one quarter of its weight of alum, and leaving it twenty-four hours, at the common temperature of the air; when it is withdrawn, washed, and dried. The cotton will be sufficiently imbued

with the mordant, if allowed to remain in the solution only seven or eight minutes, pressing it a little, without twisting it, however, on taking it out, and not immersing it in the colouring bath until twelve or fifteen hours after. In all alum mordants for wool, the alum of commerce may be employed; but when silk or cotton is to be died, especially if the colours are bright, it is necessary to make use of the alum of Rome, or of that which is equally pure; that is to say, of alum which does not contain above one five-hundredth of its weight of sulphate of iron; otherwise there will be a great quantity of oxyde of iron adhering to the fabrick, which will affect the shade we desire to obtain. The colouring matters to be transferred to the various stuffs are either soluble or insoluble in water. When they are soluble in water, which is most generally the case, they are dissolved in it at a boiling temperature; and the material to be died, after having been duly prepared, and impregnated with the mordant, is plunged into it, where it is allowed to remain for a certain time, and at a temperature varying with the nature of the stuff. When, on the contrary, the colouring matter is insoluble in water, its solution is effected in some other fluid, and the article to be coloured (prepared as in the former case, with the exception that the application of the mordant is omitted) is immersed, and the colouring matter is precipitated by the addition of a third body. Silks are died at a temperature which is gradually increased from 86 to 175° Fahr. If the bath is heated above 85°, at the commencement of the process, the effect of the mordant is diminished, and the desired shades of colour will not be produced. For the same reason, in dying hemp and flax, the temperature should not exceed 97° Fahr. Cottons and woollens may be died at a boiling heat.

Various mechanical contrivances are made use of in immersing the different materials to be died into the colouring solution, so as to cause all their parts to be equally affected at the same time. As soon as they are withdrawn from the colouring bath, they are washed in a large quantity of water, in order to deprive them of those particles of colouring matter that are merely superficial.

The following are the die-stuffs used for producing *fast* colours: 1. *Black*. The cloth is impregnated with acetate of iron, (iron liquor,) and died in a bath of madder and logwood. 2. *Purple*. The preceding mordant, diluted, with the same dying bath. 3. *Crimson*. The mordant for purple, united with a portion of acetate of alumine, or red mordant, and the above bath. 4. *Red*. Acetate of alumine is the mordant, and madder is the die-stuff. 5. *Pale Red*, of different shades. The preceding mordant, diluted with water, and a weak madder bath. 6. *Brown of Pompadour*. A mixed mordant, containing a somewhat larger proportion of the red than of the black, and the die of madder. 7. *Orange*. The red mordant, and a bath, first of madder, and then of quercitron. 8. *Yellow*. A strong red mordant, and the quercitron bath, whose temperature should be considerably under the boiling point of water. 9. *Blue*. Indigo, rendered soluble and greenish-yellow coloured, by potash and orpiment. It recovers its blue colour by exposure to the air, and becomes firmly fixed upon the cloth.

An indigo vat is also made by diffusing indigo in water, with quicklime and copperas. These substances are supposed to act by deoxydizing indigo, and, at the same time, rendering it soluble. *Golden die*. The cloth is immersed alternately in a solution of copperas and lime-water. The protoxyde of iron, precipitated on the fibre, soon passes, by absorption of atmospherical oxygen, into the golden-coloured deutoxyde. *Buff*. The preceding substances, in a more dilute state. *Blue vat*, in which white spots are left on a blue ground of cloth, is made by applying to these points a paste, composed of a solution of sulphate of copper and pipe-clay, and, after they are dried, immersing it, stretched on frames, for a definite number of minutes, in the yellowish-green vat, of one part of indigo, two of copperas, and two of lime, with water. *Green*. Cloth dried blue, and well washed, is imbued with the acetate of alumine, dried, and subjected to the quercitron bath. In most of the above cases, the cloth, after receiving the mordant paste, is dried, and put through a mixture of cow-dung and warm water. It is then put into the dying vat or copper. The foregoing colours are also produced from deccotions of the different colouring woods; but, as they possess but little fixity when thus formed, they are denominated the *fugitive* colours. 1. *Red* is made from Brazil wood and peach wood. 2. *Black*. A strong extract of galls and deuto-nitrate of iron. 3. *Purple*. Extract of logwood and the deuto-nitrate of iron. 4. *Yellow*. Extract of quercitron bark, or French berries, and nitro-muriate of tin. 5. *Blue*. Prussian blue and solution of tin. Fugitive colours are thickened with gum tragacanth, and are sometimes sent to market without being washed.

Sponge.—Sponge is allowed now to be a living being; but it long remained a question, whether it was a vegetable or an animal one. Its animality is now the belief of the best naturalists. It is described as fixed and torpid; of various forms, composed of net-work fibres, or of masses of small spines interwoven together, and clothed with a gelatinous flesh, full of small mouths on its surface by which it absorbs and rejects water.

THE HISTORY OF LIFE.

I SAW an INFANT in its mother's arms,
And left it sleeping:
Years passed—I saw a GIRL with woman's charms,
In sorrow weeping.
Years passed—I saw a MOTHER with her child,
And o'er it languish:
Years brought me back—yet through her tears she smiled,
In deeper anguish.
I left her—years had vanished, I returned,
And stood before her;
A lamp beside the childless WIDOW burned—
Grief's mantle o'er her.
In tears I found her whom I left in tears,
On God relying,
And I returned again in after years,
And found her dying,
An infant first, and then a maiden fair—
A wife—a mother—
And then a childless widow in despair—
Thus met a brother.
And thus we meet on earth, and thus we part,
To meet; oh never!
Till death beholds the spirit leave the heart,
To live for ever.

U. S. Gazette.

[Retreat from Russia.]

RETREAT FROM RUSSIA.

The retreat from Russia of the French armies under Napoleon is one of the most disastrous events in the annals of military warfare. On the preceding page we have represented a scene from the campaign; it represents a corps of the wounded, still turning to the herds of Cossacks who hovered around them, and presenting an unbroken front. Alas! for the brave; of what little avail was their indomitable courage! Alas! for Napoleon, the most devoted attachments ever shown for man, was of no use.

La Baume in his "Campaign of Russia," among other interesting matter, gives the following thrilling description of some of the scenes in this retreat:—

"The presence of the emperour had kept the chiefs to their duty, but when they heard of his departure, the greater part of them followed his example, and shamefully abandoned the remains of the regiments with which they had been intrusted. Until then we had found, at intervals, some few armed soldiers, who, conducted by their officers, rallied round the standard which they had sworn never to forsake, but with life. But from the moment that they were deprived of their chiefs, and that unheard-of calamities had reduced their numbers, those brave soldiers, who were intrusted with the immediate charge, were reduced to the painful necessity of hiding their colours in their knapsacks. Many of them, sensible that they were expiring, and knowing that the honour of a French soldier consisted in preserving his colours, with a weak hand dug up the ground, to save from the Russians those ensigns under which our arms had been raised to the pinnacle of glory.

"The division of Loison, which had come before us from Königsberg, and that of the Neapolitans, from Wilna, having been obliged to encamp in a cold of twenty-two degrees, were totally destroyed, and out of six thousand men, of which each was composed, we could only see, through a thick fog, some feeble battalions, who ran on the road like madmen. They beat the earth with their feet, to keep themselves from being benumbed by the frost, and if, unfortunately, they were urged by the wants of nature, losing the use of their hands, they fell on the ground, and rose again no more. They who could support the fatigue of marching, only prolonged their misery; and if, at length, weary of life, they wished to terminate their sufferings, it was necessary only to stand still.

"The road which we followed, presented, at every step, brave officers, covered with rags, supported by branches of pine, their hair and beards stiffened by the ice. These warriours, who, a short time before, were the terrour of our enemies, and the conquerors of Europe, having now lost their fine appearance, crawled slowly along, and could scarcely obtain a look of pity from the soldiers whom they had formerly commanded. Their situation became still more dreadful, because all who had not strength to march were abandoned, and every one who was abandoned by his comrades, in an hour afterward inevitably perished. The next day every bivouack presented the image of a field of battle. Whenever a soldier, overcome with fatigue, chanced to fall, his next neighbour rushed eagerly upon him, and before he was dead, robbed him of all that he possessed, and even of his clothes. Every moment we heard some of these unhappy men crying out for assistance. 'My comrades,' cried one, with a heart-rending voice, 'assist me to rise; lend me a hand to pursue my march.' Every one continued his march without regarding him. 'Ah!' he continued, 'I conjure you, by every thing which is dear to you, do not abandon me to the enemy; in the name of humanity, grant the little assistance I ask; help me to rise.' But those who passed, far from being moved by this touching prayer, regarded him as already dead, and immediately began to strip him. We then heard him crying out, 'Oh, help! help! They murder me; they murder me! why do you trample upon me? Why do you snatch from me my money and my bread, and take from me even my clothes!' If some generous officer did not arrive in time to deliver them, many of these unfortunate beings would be assassinated by their own comrades.

"The winter was so severe, that the soldiers burnt whole houses to avoid being frozen. We saw round the fires, the half-consumed bodies of many unfortunate men, who, having advanced too near, in order to warm themselves, and being too weak to recede, had become a prey to the flames. Some miserable beings, blackened with smoke, and besmeared with the blood of the horses which they had devoured, wandered like ghosts, round the burning houses. They gazed on the dead bodies of their companions, and, too feeble to support themselves, fell down, and died like them.

"Misfortune having equalized all conditions, every thing was confounded. It was in vain that the officers endeavoured to assert their authority; it was insolently denied. The colonel, who had no food, was obliged to beg a piece of biscuit from the private soldier. The man who possessed provisions, although he were a servant, was surrounded by a crowd of courtiers, who, to obtain food, threw aside their rank and distinction, and condescended to caress him. In short, to form an adequate idea of the dreadful disorder to which famine and cold had reduced us, you must figure to yourself thirty thousand men, of different ranks, marching together, without order and without discipline; ignorant of the road they were going, and only stopping when weariness or caprice impelled them. The chiefs themselves, being accustomed to command, were the most unfortunate. They were shunned, to avoid rendering assistance; for, in our situation, even to give a glass of water, or to raise a fellow-soldier from the ground, were offices of kindness which claimed the warmest gratitude.

"The route was covered with soldiers who no longer retained the human form, and whom the enemy disdained to make prisoners. Every day these miserable men made us witnesses of scenes too dreadful to relate. Some had lost their hearing, others their speech, and many, by excessive cold and hunger, were reduced to a state of frantick stupidity, in which they roasted the dead bodies of their comrades for food, or even gnawed their own hands and arms. Some were so weak, that, unable to lift a piece of wood, or roll a stone towards the fires which they had kindled, they sat upon the dead bodies of their comrades, and, with a haggard countenance, steadfastly gazed upon the burning coals. No sooner was the fire extinguished, than these living spectres, unable to rise, fell by the side of those on whom they had sat. We saw many who were absolutely insane."

REVOLUTIONARY ANECDOTES.

MRS. CHARLES ELLIOT.

THERE was in the legion of Pulaski, a young French officer of singular fine form and appearance, named Celeron. As he passed the dwelling of Mrs. Charles Elliot, a British major, whose name is lost, significantly pointing him out, said, "See, Mrs. Elliot, one of your illustrious allies—what a pity it is, that the hero has lost his sword."

"Had two thousand such men," replied the lady, "been present to aid in the defence of our city, Charlestown, think you, sir, that I should ever have been subject to the malignity of your observation?" At the moment, a negro, trigged out in full British uniform, happened to pass: "See, major," continued she, "one of your allies;—bow with gratitude for the service received from such honourable associates—caress and cherish them—the fraternity is excellent."

MRS. RICHARD SHUBRICK.

AN American soldier, flying from a party of the enemy, sought Mrs. Richard Shubrick's protection, and was promised it. The British, pressing close upon him, insisted that he should be delivered up, threatening immediate and universal destruction in case of refusal. The ladies, her companions, who were in the house with her, shrunk from the contest and were silent; but, undaunted by their threats, this intrepid lady placed herself before the chamber into which the unfortunate fugitive had been conducted, and resolutely said: "To men of honour, the chamber of a lady should be as sacred as the sanctuary! I will defend the passage to it, though I perish. You may succeed and enter it, but it shall be over my corpse."

"By God!" said the officer, "if musket were placed in the hands of a few such women, our only safety would be found in retreat; your intrepidity, madam, gives you security; from me you shall meet with no further annoyance."

MRS. JACOB MOTTE.

WHEN compelled by painful duty, Lieutenant-Colonel Lee informed Mrs. Jacob Motte, that in order to accomplish the immediate surrender of the British garrison, occupying her elegant mansion, its destruction was indispensable, she instantly replied, "The sacrifice of my property is nothing, and I shall view its destruction with delight if it shall in any degree contribute to the good of my country." In proof of her sincerity, she immediately presented the arrows by which combustible matter was to be conveyed to the building.

MRS. WRIGHT.

AT the commencement of the Revolution, Mrs. Wright, a native of Pennsylvania, a distinguished modeller of likenesses and figures of wax, was exhibiting specimens of her skill in London. The king of Great Britain, pleased with her talents, gave her liberal encouragement, and, finding her a great politician, and an enthusiastick republican, would often enter into discussion relative to passing occurrences, and endeavoured to refute her opinion with regard to the probable issue of the war. The frankness with which she delivered her sentiments, seemed rather to please than to offend him; which was a fortunate circumstance, for, when he asked an opinion, she gave it without constraint, or the least regard to consequences. I remember to have heard her say, that on one occasion, the monarch, irritated by some disaster to his troops, where he had prognosticated a triumph, exclaimed with warmth: "I wish, Mrs. Wright, you would tell me how it will be possible to check the silly infatuation of your countrymen, restore them to reason, and render them good and obedient subjects."—"I consider their submission to your majesty's government is now altogether out of the question," replied Mrs. Wright: "friends you may make them, but never subjects; for America, before a king can reign there, must become a wilderness, without any other inhabitants than the beasts of the forest. The opponents of the decrees of your parliament, rather than submit, would perish to a man; but if the restoration of peace be seriously the object of your wishes, I am confident that it needs but the striking off of THREE HEADS to produce it."—"O, Lord North's, and Lord George Germaine's, beyond all question; and where is the third head?" "O, sire, politeness forbids me to name HIM. Your majesty could never wish me to forget myself, and be guilty of an incivility."

In her exhibition room, one group of figures particularly attracted attention; and by all who knew her sentiments, was believed to be a pointed hint at the results which might follow the wild ambition of the monarch. The busts of the king and queen of Great Britain, were placed on a table, apparently intently gazing on a head, which a figure, an excellent representation of herself, was modelling in its lap. It was the head of the unfortunate Charles the First.

BARON STEUBEN.

WHEN General Arnold apostatized and attached himself to the British standard, Baron Steuben, the inspector-general of the army, to shew his perfect abhorrence of the traitor, commanded that every soldier who bore the name, should change it, or be immediately dismissed the service. Some days after, finding a soldier of Connecticut, who had paid no attention to the mandate, he insisted that he should be instantaneously expelled from the rank.

"I am no traitor, my worthy general," said the soldier, "and will willingly renounce a name that the perfidy of a scoundrel has for ever tarnished, if allowed to assume one which is dear to every American soldier. Let me be Steuben, and be assured that I will never disgrace you."—"Willingly, my worthy fellow," replied the baron. "Be henceforth Steuben, and add to the glory of a name that hath already acquired lustre, by the partial adoption of a brave man." The soldier, at the conclusion of the war, kept a tavern in New England, exhibiting a representation of his patron as a sign, and, as long as the baron lived, received a pension from him as a reward for his partial attachment.

General Putnam.—Among the worthies who figured during the era of the American revolution, perhaps there was none possessing more originality of character than General Putnam, who was eccentrick and fearless, blunt in his manners, the daring soldier, without the polish of the gentleman. He might well be called the *Marion* of the north, though he disliked disguise, probably from the fact of his lisping, which was very apt to overthrow any trickery he might have in view.

At the time a stronghold, called *Horse-neck*, some miles above New York, was in possession of the British, Putnam, with a few sturdy patriots, was lurking in its vicinity, bent on driving them from the place. Tired of lying in ambush, the men became impatient, and importuned the general with questions, as to when they were going to have a 'bout with the foe. One morning, he made a speech something to the following effect, which convinced them that something was in the wind :—

"Fellers—You've been idle too long, and so have I.—I'm going down to Bush's at Horse-neck, in an hour, with an ox-team, and a load of corn. If I come back, I will let you know the particulars ; if I should not, let them have it, by the hokey!"

He shortly afterward mounted his ox-cart, dressed as one of the commonest order of yankee-farmers, and was soon at Bush's tavern, which was in possession of the British troops. No sooner did the officers espy him, than they began to question him as to his whereabout, and finding him a complete simpleton, (as they thought,) they began to quiz him, and threatened to seize his corn and fodder.

"How much do you ask for your whole concern?" asked they.

"For marcy sake, gentlemen," replied the mock clod-hopper, with the most deplorable look of entreaty, "only let me off, and you shall have my hull team and load for nothing; and if that wont dew, I'll give you my word I'll return to-morrow, and pay you heartily for your kindness and condescension."

"Well," said they, "we'll take you at your word; leave the team and provender with us, and we won't require any bail for your appearance."

Putnam gave up the team, and sauntered about an hour or so, gaining all the information that he wished: he then returned to his men, and told them of the foe and his plan of attack.

The morning came, and with it sallied out the gallant band. The British were handled with rough hands, and when they surrendered to General Putnam, the clodhopper, he sarcastically remarked, "Gentlemen, I have only kept my word. I told you I would call and pay you for your kindness and condescension."

RETORT COURTEOUS.

The enmity of the contending armies during the siege of Charleston, was not confined to open hostility, but manifested itself in the indulgence of irony too pointed not to give increase to mutual animosity. Towards the conclusion of it, the British, believing that the fare of the garrison was both indifferent and scanty, a thirteen-inch shell was thrown from the lines, which passing immediately over the horn-work, manned from a detachment of the ancient battalion of artillery of Charleston, fell into a morass immediately in the rear, without exploding. An officer of the corps, who saw it lodge, approaching it after a little time, perceived a folded paper attached to it, directed "To the Yankee officers in Charleston;" the contents of which expressed a wish, "that in their known state of starvation, they would accept from a compassionate enemy, a supply of the necessaries they so much delighted in." The shell was filled with rice and molasses.

To return the compliment, a shell was immediately filled with hog's lard and brimstone, and thrown into the British works, accompanied by a note, expressing thanks for the present received, and begging that the articles returned by a considerate enemy might be appropriated to the use of the Scotch gentlemen in the camp, to whom, as they were always of consequence, they might now prove peculiarly acceptable. It was understood after the siege, that the note was received, but not with that good humour that might have been expected, had it been considered as a jeu d'esprit, resulting from justifiable retaliation.

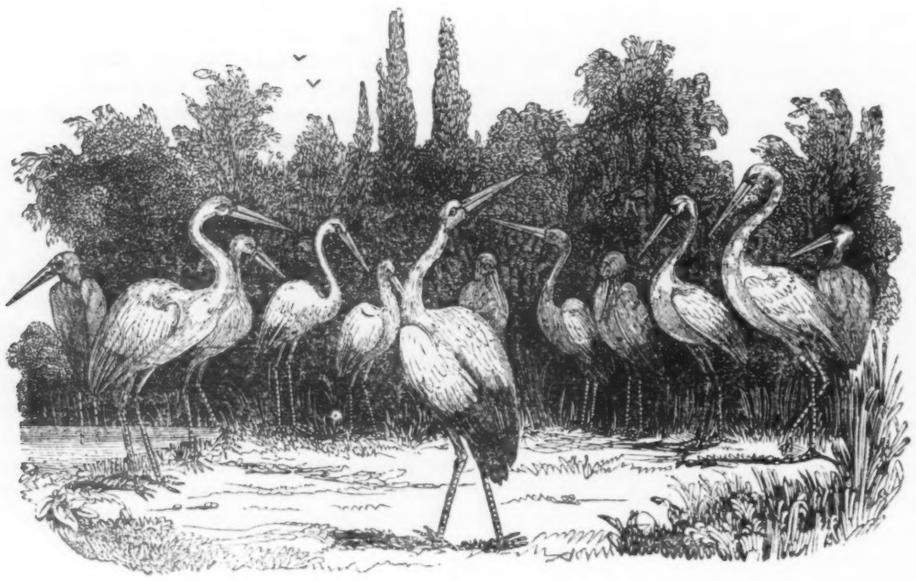
MAJOR EDWARDS.

Major Evan Edwards was of the Baptist persuasion, and originally designed for the ministry, but, imbibing the military spirit of the times, entered the army and appeared at the commencement of the war as one of the defenders of Fort Washington. A brave and stubborn resistance could not save the post which fell into the hands of the enemy, and Edwards became a prisoner. I have often heard him make a jest of the whimsical and fantastick figure which he exhibited on this occasion. "It was not to be wondered at," said he, "that starch in my person, emaciated as an anatomy, with a rueful countenance, rendered more ghastly by misfortune, my dress partly military, but showing much of a clerical cut, the risibility of our conquerors should have been highly excited.

"One of the leaders, however, of the successful assailants, anxious to excite a still higher degree of merriment, ordered me to ascend a cart, and as a genuine specimen of a rebel officer, directed that I should be paraded through the principal streets of New York. It was at the entrance of Canvass Town that I was much amused by the exclamation of a Scottish female follower of the camp, who called to a companion: 'Quick, quick, lassie, rin hither a wee, and divarte yoursel: they've cotched a braw and bonnie rebel, 't will de ye gude to laugh at him.' Hooting and derision attended my whole career, and at the conclusion of the farce I was committed to prison."

A STANDING ARMY.

In the battle before New Orleans in 1814, under Gen. Jackson, Col. Kemper of Gen. Coffee's brigade found himself almost surrounded by the enemy. Perceiving his perilous situation, and that his only chance of escape was by stratagem, he exclaimed in an audible voice to a group of the enemy, "What the devil are you doing there? Where is your regiment? Come along with me immediately!" and they all followed him into the American lines, and were made prisoners.



[Assemblage of Herons.]

ASSEMBLAGES OF BIRDS.

It has been observed by some writers that crows are usually of solitary habits, seldom associating in greater numbers than pairs; but this rule has its exceptions, and the following instances of the mysterious assemblages of these and other birds, may be justly classed among their most extraordinary instinctive habits:—

In the northern parts of Scotland, and in the Ferroe islands, extraordinary meetings of crows are occasionally known to occur. They collect in great numbers, as if they had been all summoned for the occasion; a few of the flock sit with drooping heads, and others seem as grave as judges, while others again, are exceedingly active and noisy; in the course of about an hour they disperse, and it is not uncommon, after they have flown away, to find one or two left dead on the spot. Another writer says, that these meetings will sometimes continue for a day or two, before the object, whatever it may be, is completed; crows continue to arrive from all quarters during the session. As soon as they have all arrived, a very general noise ensues, and shortly after, the whole fall upon one or two individuals, and put them to death: when this execution has been performed, they quietly disperse.

Another and nearly similar meeting was witnessed near Oggersheim, a small village on the banks of the Rhine; where, in a large meadow, every autumn, the storks assemble, to hold (as the country-people call it) a council, just before their annual migration. On one of these occasions, about fifty were observed, formed in a ring round one individual, whose appearance bespoke great alarm. One of the party then seemed to address the conclave, by clapping its wings for about five minutes. It was followed by a second, a third, and a fourth, in regular succession, each, like the first, clapping its wings in the same odd and significant manner. At last, they all joined in chorus, and then with one accord fell upon the poor culprit in the middle, and despatched him in a few seconds. After which they rose up in a body, and one, according to their custom, taking the lead, flew off to the southward. This curious story is in some degree corroborated by the opinion of old writers, one of whom, in describing the migrations of these birds, in the eastern countries, says, that when they go away, the stork that comes last to the place of rendezvous, is killed on the spot by the others.

At Dunham, near Altrincham, in Cheshire, the seat of the earl of Stamford, there is a heronry, which has existed for many years. It happened, about the latter end of March, or beginning of April, a few years ago, that a gentleman, riding along the turnpike-road, saw in a small field, about a mile from the trees where the birds breed, about thirty-five or forty standing on the ground, and occasionally moving slowly in various directions. At first, he was uncertain what birds they were, as their heads were thrown back, and they appeared little raised from the ground; but on approaching the spot, he was soon satisfied that they were herons; his presence, however, had no other effect, (though in general they are remarkably shy and cautious,) than inducing those nearest the hedge, where he had stationed himself to watch their motions, to walk leisurely to a more distant part of the field. He remained for some time a spectator of their singular assemblage, which impressed him with the opinion, that it was a deliberative council; and we agree with him, that in this case at least, though not in the preceding, which occurred in the autumn, their object was connected with the usual pairing, which takes place about that time. We are the more strengthened in the opinion, from having witnessed meetings in some degree similar among magpies, and some other birds.

In the month of February, we recollect once seeing a prodigious number of magpies in a field; some hopping about near the hedge, others secreted in the hedges, and no less than twenty-seven perched on a small ash tree; at first, the presence of a fox was suspected, knowing it to be a constant practice with these birds to collect if Reynard shows himself; but as they did not appear to be hovering over any particular spot, as if a concealed enemy was lurking near we inclined to the opinion, that some private

concerns of their own had brought them together. The chattering was incessant, and when disturbed, and under the necessity of beating a retreat, they flew nearly in the same direction, as if disposed to adjourn their meeting to a more retired spot, than with a view to break it up.

A singular habit, somewhat similar, little known or noticed, though not uncommon, prevails also among starlings; if carefully watched, they may be seen occasionally to alight in a regular circular form. A numerous flock was once seen to divide itself into two companies, each forming a distinct circle. If undisturbed, they will remain a considerable time in the same place uttering the same twittering note upon the ground, as when perched on trees or reeds. This habit is usually observable in pastures—sometimes, though rarely, in stubble-fields, but never upon fallow or new ploughed land. Nor is this habit confined to land birds.

ILLUSTRATIONS OF SCRIPTURE.

[Almond-Tree.]

The common or sweet almond is a soft and pleasantly-favoured kernel contained in a nut which is of a flattish shape and has an inner shell.

The almond-tree (*amgydalus communis*) is usually twelve or fourteen feet high. Its beautiful pink flowers grow in pairs; they appear very early in the spring and are remarkably beautiful. Almonds are imported into this country sometimes in the shell and often without, from France, Spain, Italy and the Levant. They are packed in casks, boxes, or bales. The province of Valencia was formerly much celebrated for its almonds, but the cultivation of the trees in that part of Spain has for several years been neglected. By pressure they yield a considerable proportion, sometimes nearly half their weight of oil. In some parts of the East Indies it is said that almonds supply the place of small money.

Cavern in the Himaleh Mountains.—During the last season, as we are informed by a Bramin, some Hindoo travellers having ascended the principal Himaleh mountain, which is five miles high, about a quarter of that distance, stopped to rest on the spur which juts out towards the west. There, while walking about, our informant states that he discovered a subterranean aperture, which proved, on inspection, to be 20 feet high, and 16 wide, all of the finest marble, and within was a capacious and perfectly hemispherical apartment, about 300 feet high. He now returned to his companions, who all agreed to explore the subterranean cavern after procuring suitable articles from a village 8 miles distant.

Next day they entered the cavern, and proceeding east 200 yards, entered another by an aperture as large as the first. They travelled nearly 3 miles across this, with a gentle ascent and entered another, in which after 5 miles' travel, they discovered a gentle current of water, nearly 29 feet wide, and 2 deep, running over solid rock. After following the stream for a mile, they came to entire skeletons of men and animals, and after examining them, they judged it best to return to the mouth of the cavern, and procure horses.

Two days afterward, they sat out again; the noise of the horses' hoofs was re-echoed like thunder in the first cavern; in the second, it was much louder, and in the third, it was so deafening, that they durst only continue at a very slow pace; and crossing the the brook, at about 13 miles from the entrance, they came to a fourth cavern, where they left their horses, and proceeded, barefoot on account of the echo. They had probably reached some local point, when their whispers to each other had a loud, strange and terrifick sound, and a little after, the sneezing of one the horses, resounded through the immense vault, and made the party, by its effects, beware of proceeding farther. They returned again to the external world; but they have made some wonderful discoveries, which they will publish. Calcutta Gazette.

Insects.—All genuine insects, have six legs; a head distinct from their body, furnish with two antennæ; and pores for respiration, conducting to the tracheæ, arranged along their sides. They are all produced from eggs. Some undergo no metamorphosis; others, but a partial change; while the remainder pass through three stages of existence, after their egg-state. Samouelle.

Vegetables.—Vegetable substances, which have apparently lost all vital power, may frequently be made to germinate by iodine. The vegetable acids and their salts favour the development; so do the alkalies and sulphur. Solutions of alcohol, camphire, and essential oils, accelerate vegetation, especially camphire; but in their concentrated state, destroy it. The aromatick infusions, sugar and gum, promote it, if they do not ferment. Leuchs.

It is not by the exertion of corporeal strength and activity that the momentous affairs of state are conducted: it is by cool determination, by prudent counsel, and by that authoritative influence which ever attends on publick esteem.

USEFUL KNOWLEDGE.

COLOGNE.

Cologne is a fragrant water, made originally, and in most perfection, in Cologne. Formerly, many wonderful powers were ascribed to this water, but it was probably never so much in demand as at present, in Europe and America, and numberless recipes have been given for its manufacture. It was invented by a person named *Farina*, in whose family the secret, as they say, continues to be preserved, since chymistry has not been able as yet to give the analysis of it. It is imitated, however, every where. The consumption of this perfume has increased, and there exist at present, fifteen manufactories of it in Cologne, which produce several millions of bottles yearly; much, also, is manufactured at Paris, in Saxony, and other places. One of the many recipes to make *eau de Cologne*, is the following:—

Alcohol, or spirit of wine, at 30° . . 2 pints
Oleum neroli
——— de cedro
——— de cedrat
——— cort aurant . . . . . 24 drops.
——— citri
——— bergamot
——— rosmarin
Seed of small cardamum . . . . . 2 drachms.

Distil it in a sand-bath, until three fourths of the alcohol have evaporated.

PLASTERING CORN.

The following experiment, performed many years ago by John Taylor of Virginia, suggests a practice which may be adopted at the present season with great propriety by almost every farmer:—

"Sowed twenty-three bushels of plaster on twenty-three acres of corn, in a large field. Ploughed in part immediately, harrowed in part, and left part on the surface ten days before it was worked in. The corn was four inches high. The weather moist. There was no difference between the three divisions. The seed of the whole field had been rolled in plaster. These twenty-three acres exceeded the adjoining corn twenty-five per cent.: its blades and tops also dried sooner."

SHOE-BLACKING.

Perhaps the best in the world is elder-berries. Mash the berries with your hand in a large kettle of water, set them in the shade a few days, filling it up with water. After it is cool, strain and wring them through a coarse cloth, and then boil it down to the thickness of molasses. Put a small quantity with a feather on a brush, rub the shoe till there is a fine gloss. The same will make good writing-ink.

TO KEEP OFF FLIES.

At a meeting of the British Entomological society, on the fourth of April, a paper was read, developing a plan for keeping flies out of houses. The means adopted is simply a net of different-coloured thread, the meshes three quarters of an inch square, which is hung before the window. The flies, it seems, are stupid enough to suppose that this net presents an absolute bar to their entrance, and therefore do not make the attempt.

FOREST-TREES FROM SEEDS.

Farmers should remember that there are many forest-trees raised from seed that sell well; and they are valuable for timber or fruit. Among these are the juglans squamosa, or shagbark hickory, and the jareiga or Madeira-nut. These trees when two or three years old will, in almost any neighbourhood, sell for remunerating prices. Early in May is not too late to sow forest-trees.

ANTHRACITE COAL-ASHES.

Mr. Snyder of Philadelphia, has received a premium for his fruits, and he thinks he has preserved his trees from attacks of insects, by using anthracite coal-ashes for two years past about the roots of his trees.

IMPORTANT IMPROVEMENT IN DYING.

Blue dies being most in request throughout the country, either by themselves or as a ground for other colours, it has been calculated, by practical men, that the adoption of the prussiate-of-iron die will enable the manufacturer to augment his annual amount of business by more than one fifth, without his spending one cent for additions to his machinery. This remarkable result is brought about by the more expeditious working of the wool in white, instead of being first died before manufacture. As to the effects of this mode on the fabricks themselves, we have only to refer to the exhibitions of our institutes, where black cloths, notwithstanding their defective colouring, have always the highest medals awarded to them in preference to cloths of other colours, (which is owing entirely to their being died in the piece,) for their superiour tightness, softness, and finish. Moreover, those manufacturers who are debarred from making blue goods by the difficulties attending the proper management of an indigo vat, will, henceforward, be permitted to add this brilliant variety to their stock. And last, not least, those who have to struggle against British competition in the sale of coarse goods and satinetts, are at once placed in the position to rule the market.

The advantages likely to accrue to the hands employed, from the carding to the curling-room, may, for people paid according to the amount of work done, be summed up by—neatness and increased despatch.

A well-grounded distrust prevails of indigo-blue goods died in the piece, which has been strengthened by the importation of logwood dies and their sale at auction, as fast colours. It would be mistaking the good sense of an enlightened community, to attempt to guard them against converting that distrust into a prejudice towards the new die. The simple fact that it is sold by responsible manufacturers and merchants living among, and personally known to them, will satisfy them that they are fairly dealt with. Thus to the advantage of lighter and better finished fabricks will be added, for the consumer, that of a most beautiful and never-fading colour, particularly on cloths, made of coarse wool, now most defective in that respect. We may as well mention, in finishing, a singular property, confirmed by direct experiments, of cloths died by this process—they have never been known to be eaten by moths.

MISCELLANY.

EXTRAORDINARY ANTIPATHIES.

What jarring chord of the human fabrick is struck—and how is it struck—to produce effects both involuntary, irresistible, and unaccountable, similar to the following remarkable sensations?

Henry III. of France could not stay in a room where there was a *cat*, although he was so immoderately fond of dogs that he was seen to go about with a basket of young puppies suspended from his neck by a black string. The Duc D'Epernon fainted at the sight of a *leveret*. Marechal D'Albert could not endure the presence of a *wild boar*, nor even that of a *sucking-pig*. Uladislas, king of Poland, was distracted at the sight of *apples*. Erasmus could not smell *fish* without being greatly agitated. Scaliger trembled at the sight of *water-cresses*. Tycho Brahè felt his limbs sink under him when he met either a *hare* or a *fox*. Bacon swooned at an *eclipse* of the *moon*. Boyle fell into convulsions on hearing the sound of *water* drawn from a cock. James I. of England could not endure the sight of a *drawn sword*; and Sir Kenelm Digby narrates that the king shook so vehemently in knighting him, that he would have run the point of his sword into the eye of the knight elect, if the Duke of Buckingham had not guided it across his shoulder. M. La Motte de Vayer could not endure *musick*, but delighted in the sound of *thunder*. An Englishman of the seventeenth century, was nearly expiring, whenever the fifty-third chapter of *Isaiah* was read to him. A Spaniard about the same period fell into a syncope, whenever he heard the word *lana* (wool) mentioned, although his coat was made of that material.

THE JOWA DISTRICT.

A little work has been published at Philadelphia, accompanied by a lithographick map, entitled, *Notes on Wisconsin Territory*, by Lieut. Albert M. Lee, U. S. Dragoons. The notes are confined to a track of country called the Jowa District, constituting in geographical extent, but an inconsiderable part of the Wisconsin territory. This territory, according to the late act of Congress, by which it is established, is bounded, on the east by lake Michigan, and the state of the same name, on the north by the British possessions, on the west by the White-Earth and Missouri rivers, and on the south by the states of Missouri and Illinois. It consequently embraces an immense extent of territory, sufficient to form a number of states. The Jowa District consists of that portion of the Wisconsin territory which lies on the west side of the Mississippi river, and borders on the north, upon the state of Missouri. It is two hundred miles in length, from north to south, and is not more than fifty miles in width, extending that distance west from the Mississippi.

This district is deserving of particular notice, on account of its beauty and fertility, the richness not only of its soil, but of the productions of its mines, and the rapid increase of its population. Near the close of the year 1835, a little more than than two years from the date of the first settlement, the population, exclusive of Indians was found to be sixteen thousand. During the last winter and summer the emigration has been extremely rapid, particularly from the states of Ohio, Indiana, Illinois, Kentucky, and Missouri. The population of the District is described to be remarkably industrious, orderly and intelligent. The Mississippi river is navigable for steamboats drawing three feet of water, along the whole length of the District. The District is intersected by a great number of streams, some of which are navigable, and most of them afford, in some part of their course, falls offering eligible millsites. The soil is rich, producing in abundance, either corn, wheat, rye, oats or potatoes.—The produce, with negligent cultivation, is equal to fifty or one hundred bushels of the white corn of the South, or of the yellow flint corn, forty to seventy-five bushels; wheat twenty-five to forty bushels; oats sixty to seventy bushels. There is abundance of bituminous coal, limestone, and, in the northern part of the District, the finest lead mines in the United States. These various recommendations, together with the salubrity of the climate, present the strongest attractions to emigrants, and the country is in consequence rapidly filling up. The increase of population is so rapid, that a new state, will undoubtedly be soon formed, north of Missouri, including this District.

PALM-LEAF HATS.

It is astonishing to witness the new branches of industry that are constantly springing up in industrious New England. For instance, in the small hill-town of Barre, Worcester county, where, a few years ago, the product of a few barren acres was all it could boast, there are now establishments for the manufacture and taking in of palm-leaf hats, which yield an income of five hundred thousand dollars per annum. Many other towns in that vicinity are extensively engaged in the same business.

The straw-braid manufacture also is a great business in some of the eastern towns. It has not been much thought of in this region, yet there is an establishment in Ware, which pays thirty thousand dollars a year for straw alone. When we come to add to our cotton, woollen, and leather manufactures, to our button and palm-leaf manufactures, and to the various other branches of industry already in successful operation, the culture and manufacture of silk, the West will in vain, glory in her agricultural resources. New England industry is a surer guarantee of general and individual prosperity than the most fertile soils, or mines of coal and gold.

Hampshire Gazette.

GEOLOGY OF THE HIMALEH MOUNTAINS.

Capt. Cautley, a geologist, has recently discovered the remains mammalia and other animals in a chain of hills at the southern foot of the Himalehs, and extending from the Sutlej to the Ganges.

In the district between the Jumma and the Ganges, Capt. Cautley found in the sandstone, trunks of dicotyledonious trees in great abundance, associated with portions of reptiles, and in the marl, remains of the horse, deer, bear, castor, a species of anthracotherium, the gaviel, crocodile, tortoise, fishes, and fresh-water shells, while from the sandstone of the hill west of the Jumma, he obtained remains of the mastodon, elephant, rhinoceros, hippopotamus, hog, horse, ox, deer, casnivora, crocodiles, gaviels, tortoises, and fishes.

LITERARY NOTICES.

We have received an extremely interesting and unpretending little volume entitled: "*The* Fourth *Experiment of Living*, Living without Means," published by Otis, Broaders, & Co., 147 Washington street, Boston. The best evidence of the positive value of this book, and of the liberal manner in which it has been received by the publick, is the fact, that the edition before us is the *eleventh*. We commend it to our readers, assuring them that in these *hard times* it will be found extremely apropos.

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The Harpers have just issued, as additional numbers of their Classical Library, *Pope's Translation of Homer's Iliad and Odyssey*, a work too well known to require any commendation from us.

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We stated, in a preceding number of the Family Magazine, our opinion as to the positive merits of Sir George Head's "*Home Tour through the Manufacturing Districts of England, in the Summer of* 1835," recently issued by Harper & Brothers, New York. We propose now to give a few extracts from this amusing and instructive book. Take, for instance, his description of the manner in which pins are made at Warrington. Sir George remarks:—

"Having gone from Manchester to Warrington by the above mode of conveyance, I visited a large pin manufactory in the town. I never had an opportunity, either before or since, of observing this useful art and interesting process, but all the information I was enabled to glean, during a hasty walk from chamber to chamber of the premises, may be gathered from the following description:—

"The brass wire is received at the manufactory in hanks or rolls from Staffordshire, and these are, in the first place, drawn to a fine thread in the usual manner.

"As the wire still retains a curved form, it is straightened by straining it between alternate rows of pegs inserted on a table; and when perfectly straight, it is cut into lengths of five or six inches; which lengths, however, are determinate, being intended to form the shafts of a certain number of pins. A handful of these is delivered to a workman sitting behind two wheels, like those of a scissors grinder, excepting that, instead of stone, they are made of steel, one being of a surface finer than the other. This man performs the office of pointing with wonderful quickness. He no sooner receives the little bundle of wires, than in an instant they are assorted in his hand like a pack of cards in an even row; one touch on each wheel perfects the points of one end; and then, by a turn of the hand, the points of the other end are made in like manner; and the bundle handed to another operator, who, by the eye alone, snips off a pin's length from each end. The cutting is performed by a large pair of scissors fixed to the table, the blade of which is as big as a shoulder of mutton. The wires are now repointed as before; and so on, recut by one man, and repointed by the other, till the whole are subdivided into pins' shafts, and nothing is lost.

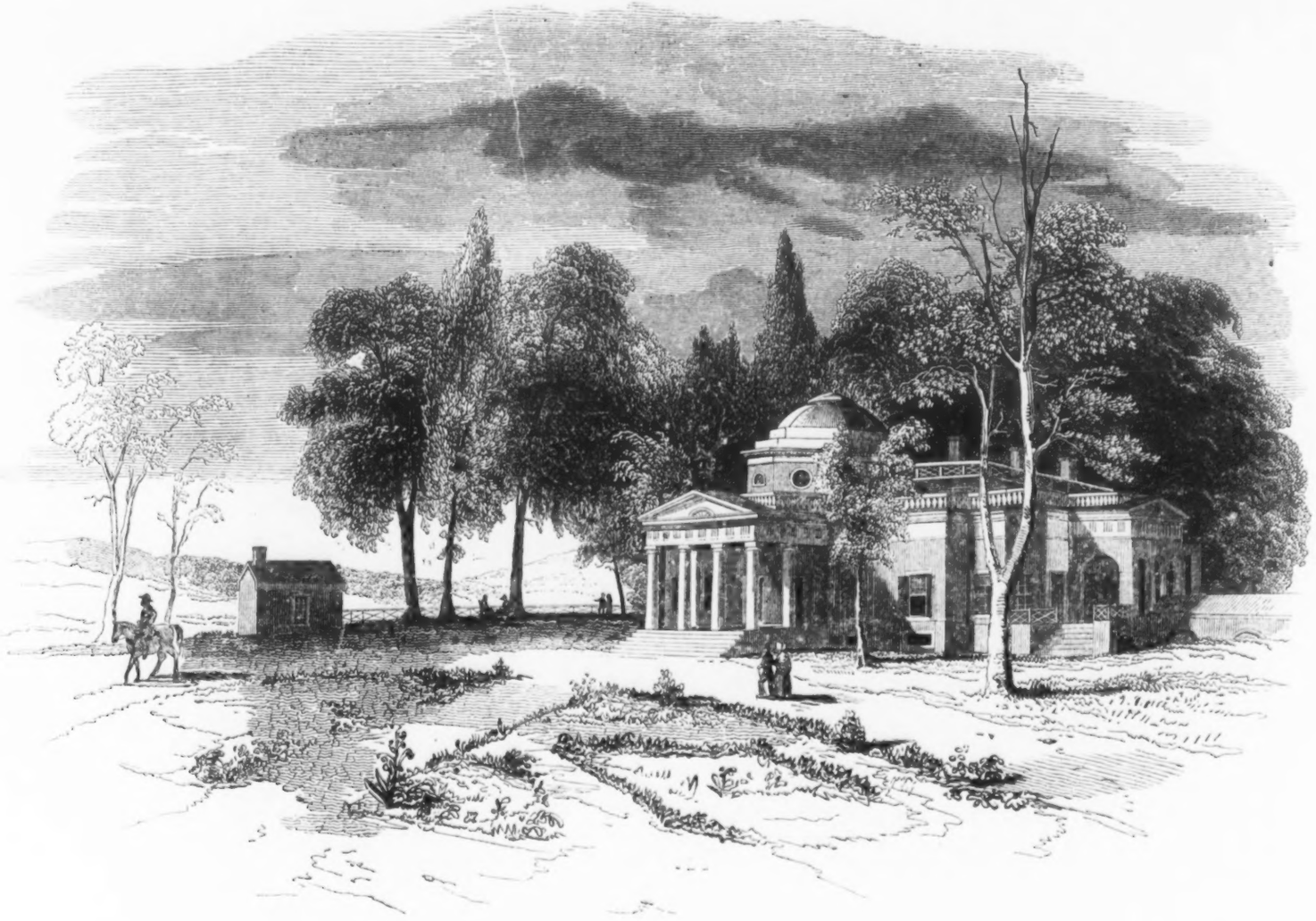
"To make the heads, two little boys are employed, one of whom especially exercises in his vocation a degree of cunning workmanship hardly to be expected from an artist so young, and at all events exhibiting an interesting display of perfection in the faculties of sight and touch. From a piece of elastick wire, such as forms the coverings of a fiddlestring, with an ordinary pair of scissors, he snips off, as quick as he can open and shut the scissors, just two threads of the spiral or *helix*, and no more. Were he to cut one thread or three, the head of the pin, which it is intended to form, being too large or too small, would be consequently rejected as waste metal, and recast into wire. The elastick wire is prepared by another little boy in the same apartment, who rolls it round a piece of straight brass wire of the proper dimensions, and about three yards long, by the assistance of a large spinning-wheel. As the wheel hums round, the covering creeps along from one end to the other at the rate of two or three inches a second; and when the straight piece of wire is thus entirely covered, it being, I imagine, made purposely a little smaller at one end than the other, it is drawn out without any difficulty.

"The pins are headed by little girls, and I was really astonished to perceive the rapidity with which every pin is taken up between the thumb and finger, and, after the head is strung upon the shaft, is placed in a small machine, which rivets it at one blow and disgorges it at another. This machine is of rather a complicated construction, but in general appearance like a small turning lathe; that is to say, it is fixed on a table, and worked in a similar way. At a turn of the wheel two small iron slabs separate with a horizontal motion, and at another close again. The little girl sits behind the machine with a basin of pins' heads in her lap, which in that state resemble poppy seeds, and having threaded two shafts, gives the wheel a turn with her foot, when the aforesaid slabs diverge one from another; she then places the two pins in two small horizontal holes made to receive them, and turning the wheel again, the slabs close violently, and rivet the two heads in a moment. Every time the slabs open, the two new-made pins tumble out and fall into a bason below.

"In order to whiten the pins, they are boiled in a caldron, in a composition of which I did not learn the ingredients, but of which the principal appeared to be tin broken into pieces the size of mustard-seed.

"After the pins are finished, it only remains to fix them upon paper in the usual way, and this is done in a separate apartment, where one woman doubles the paper, and at the same time superintends a number of girls who stick them in. The paper is doubled entirely by hand and by the eye, in parallel ridges, and then delivered to the girls who sit at tables, each with a machine like a vice before her. The creased ridges or tucks of the paper being brought two and two, are introduced below into the machine, which closes and leaves a narrow horizontal strip above. Into this the pins are inserted, and in order to guide them in a straight line, parallel transverse grooves are cut on the surface of the instrument, at equal distances, so that each pin cannot fail to enter exactly into its proper place, it not being possible for it, when pushed forward, to move in any other direction."

At Leeds, Mr. Head seems to have experienced great pleasure. He remarks: "In a large worsted-spinning establishment I saw machines for combing the wool, consisting of wheels four or five feet in diameter, through the hollow spokes and felloes of which heat was communicated by steam; their revolution was vertical, the teeth placed on the circumference, at right angles with the plane of the motion. I observed the vast power by which the water is squeezed out of the wool, after the latter is washed in a large vessel: this is done so effectually, that merely by passing the wet wool once between a pair of heavy iron cylinders, it is rendered nearly dry. In addition to the weight of the upper cylinder, both are pressed together by a compound lever, one arm of which appeared to be about a couple of feet in length, and was acted upon by a second of five feet or thereabout; the weight at the extremity of the latter, two hundred pounds. The Continent chiefly furnishes the wool for broadcloth, England that for the worsted manufacture, a longer thread being spun from the latter The degree of fineness already attained in spinning worsted by machinery is such, that a pound of wool furnishes one hundred and twenty hanks, each hank containing five hundred and sixty yards in length—equal to thirty-eight miles and two eleventh parts."



LATE RESIDENCE OF THOMAS JEFFERSON, Monticello, Va.

MONTICELLO.

The frontispiece of the present number, represents a view of Monticello, the residence of the late Ex-President Jefferson. Our drawing is from a celebrated picture by that distinguished artist, George Cooke, Esq., of Richmond, Va., to whom we would respectfully tender our thanks.

"The mansion-house at Monticello was built and furnished in the days of his prosperity. In its dimensions, and ornaments, it is such a one as became the character and fortune of the man. It stands upon an elliptick plain, formed by cutting down the apex of a mountain; and on the west, stretching away to the north and the south, it commands a view of the Blue Ridge for a hundred and fifty miles, and brings under the eye one of the boldest and most beautiful horizons in the world: while, on the east, it presents an extent of prospect, bounded only by the spherical form of the earth, in which nature seems to sleep in eternal repose, as if to form one of her finest contrasts with the rude and rolling grandeur on the west. In the wide prospect, and scattered to the north and south, are several detached mountains, which contribute to animate and diversify this enchanting landscape: and among them, to the south, Williss's mountain, which is so interestingly depicted in his notes.

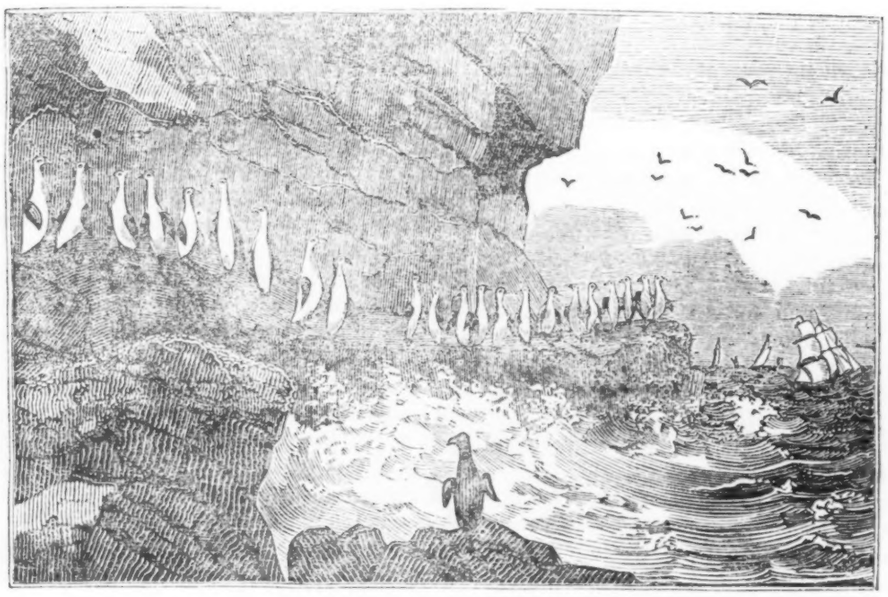
From this summit, the philosopher was wont to enjoy that spectacle, among the sublimest of nature's operations, the looming of the distant mountains; and to watch the motions of the planets, and the greater revolution of the celestial sphere. From this summit, too, the patriot could look down, with uninterrupted vision, upon the wide expanse of the world around, for which he considered himself born; and upward, to the open and vaulted heavens to which he seemed to approach, as if to keep him continually in mind of his high responsibility. It is indeed a prospect in which you see and feel, at once that nothing mean or little could live. It is a scene fit to nourish those great and high-souled principles which formed the elements of his character, and was a most noble and appropriate post, for such a sentinel, over the rights and liberties of man.

"Approaching the house on the east, the visiter instinctively paused, to cast around one thrilling glance at this magnificent panorama: and then passed to the vestibule, where, if he had not been previously informed, he would immediately perceive that he was entering the house of no common man. In the spacious and lofty hall which opens before him, he marks no tawdy and unmeaning ornaments: but before, on the right, on the left, all around, the eye is struck and gratified with objects of science and taste, so classed and arranged as to produce their finest effect. On one side, specimens of sculpture set out, in such order, as to exhibit at a *coup d'œil*, the historical progress of that art, from the first rude attempts of the aborigines of our country, up to that exquisite and finished bust of the great patriot himself, from the master hand of Caracci. On the other side, the visiter sees displayed a vast collection of Indian art, their paintings, weapons, ornaments, and manufactures; on another, an array of the fossil productions of our country, mineral and animal; the polished remains of those colossal monsters that once trod our forests, and are no more; and a variegated display of the branching honours of those 'monarchs of the waste,' that still people the wilds of the American continent.

"From this hall he was ushered into a noble saloon, from which the glorious landscape of the west again burst upon his view; and which, within, is hung thick around with the finest productions of the pencil—historical paintings of the most striking subjects from all countries, and all ages; the portraits of distinguished men and patriots, both of Europe and America, and medallions and engravings in endless profusion.

"While the visiter was yet lost in the contemplation of these treasures of the arts and sciences, he was startled by the approach of a strong and sprightly step, and turning with instinctive reverence to the door of entrance, he was met by the tall, and animated, and stately figure of the patriot himself—his countenance beaming with intelligence and benignity, and his outstretched hand, with its strong and cordial pressure, confirming the courteous welcome of his lips. And then came that charm of manner and conversation that passes all description—so cheerful—so unassuming—so free, and easy, and frank, and kind, and gay—that even the young and overawed, and embarrassed visiter at once forgot his fears, and felt himself by the side of an old and familiar friend. There was no effort, no ambition in the conversation of the philosopher. It was as simple and unpretending as nature itself. And while in this easy manner he was pouring out instruction, like light from an inexhaustible solar fountain, he seemed continually to be asking, instead of giving information. The visiter felt himself lifted by the contact, into a new and nobler region of thought, and became surprised at his own buoyancy and vigour. He could not, indeed, help being astounded, now and then, at those transcendant leaps of the mind, which he saw made without the slightest exertion, and the ease with which this wonderful man played with subjects which he had been in the habit of considering among the *argumenta crucis* of the intellect. And then there seemed to be no end to his knowledge. He was a thorough master of every subject that was touched. From the details of the humblest mechanick art, up to the highest summit of science, he was perfectly at his ease, and, every where at home There seemed to be no longer any *terra incognita* of the human understanding: for, what the visiter had thought so, he now found reduced to a familiar garden-walk; and all this carried off so lightly, so playfully, so gracefully, so engagingly, as to win every heart that approached him, as certainly as he astonished every mind." Annual Register.

The rackoon grape is one of the finest of our vines, in regard to the luxuriance of its growth, its tortuous stem ascending the tallest trees to their summit, while its branches spread out so as to entwine the whole top. I have seen stems that measured eighteen inches in diameter, and the branches often extended from one tree to another, so as to render it difficult to pull down a plant after its stem has been cut. Its flowers perfume the woods. The grapes are small, hard, and very acrid, until severely bitten by frost. In autumn and winter, rackoons, bears, opossums, and many species of birds, feed upon them. Audubon.



[Assemblage of Penguins.]

HABITS OF BIRDS.

THE great albatross, spends the chief part of his life on the wing; the king penguin on the other hand, rarely quits the water, with the exception of the breeding season, when, in some places, both unite in vast flocks, and people the rugged rocks for a time. When a sufficient number of these birds are assembled on the shore, they appear, like the herons, storks, and some other species, mentioned in the preceding number, to pass a day or two in deliberation; on concluding the consultation, they proceed to the execution of the grand purpose for which they are then and there assembled. In the first place, they select as level a piece of ground as they can find, often comprising four or five acres, and as near the water as possible—always preferring that which is least encumbered with stones, and other hard substances, which might endanger their eggs. As soon as they are satisfied on this point, they proceed to lay out the plan of their intended encampment; which task they commence by tracing a welldefined oblong, large enough to accommodate the whole united parties. One side of this square runs parallel with the water's edge, and is always left open for coming in and going out; the other three sides are differently arranged.

The next step is to clear all the ground within the space from obstruction of every kind, picking up the stones in their bills, and carefully conveying them outside the lines, until they sometimes raise quite a little wall on three sides of their space. Within the range of stones and rubbish they form a pathway, six or seven feet in width, quite smooth. On this path they all walk by day, and on it the sentinels patrol by night. Having thus finished what may be called their outworks, they next lay out the whole area in little squares of equal size, formed by narrower paths, which cross each other at right angles, and which are also made very smooth. At each intersection of these paths, an albatross constructs her nest, while in the centre of each little square is a penguin's nest.

In this regular manner is the whole space taken up by penguins and albatrosses, with the addition of a few other sea-birds, which find places in unoccupied spots. But although these penguins and albatrosses are on such intimate terms, and appear to go on so well together, they not only form very different nests, but the penguin, when she can, will rob her neighbour's. She merely makes a slight hollow in the earth, just deep enough to prevent her single egg rolling out; whereas the albatross throws up a little mound of earth, grass, and shells, eight or ten inches high, about the size of a small waterbucket, on the top of which she sits. None of their nests are ever left unoccupied for a single moment, until the eggs are hatched, and the young ones old enough to take care of themselves. The male goes to sea till he has satisfied his hunger, and then returning, takes the place of his mate, when she flies off for the same purpose; the egg being conveyed to him by the hen placing her toes together, and rolling it towards the male, the beak being used to place it properly.

During this season, the penguins may be seen marching round, or up and down the pathways of this marine rookery, as it may be termed, while the air is darkened by thousands of albatrosses, hovering like a cloud—some continually alighting and meeting their companions, while others are as constantly rising and shaping their course toward the sea.

Many of the birds of the two latter tribes, either from their feathers, skins, oil, or eggs, are considered, as it were, the standard harvest of the poor people, who, like them, are destined to abide amidst the wild and lonely islands of the ocean: it is, therefore, natural to suppose that no means are neglected, no ingenuity left untried in providing, whether for rent, clothing, food, or the lamplight of their long and dreary winter's nights, by laying in a store of each of these important articles, for which they are indebted to their companions, the sea-birds.

[Cinnamon—*Laurus cinnamomum.*]

THE CINNAMON-TREE.

THE *Laurus cinnamomum*, from which tree our spice called cinnamon is procured, is a native of the East India islands, in many of which it grows wild; but owing to the narrow policy of the Dutch who, till the year 1810, possessed most of the spice-islands, it has never been cultivated in any of them, except in the island of Ceylon, where large plantations are reared, which supply the rest of the world with this delicious and valuable article. The tree in its uncultivated state grows to the height of from twenty to thirty feet, but, in the cinnamon plantations, it is not allowed to rise above ten. The leaf resembles that of our laurel, except in being strongly marked by three principal nerves, which take their rise in the footstalk, and run lengthwise through the leaf. At its first budding, the young leaf is of a brilliant red, changing gradually from that colour to a pea-green; it becomes in its maturity, of a dark olive upon the upper side, and of rather a lighter shade upon the under surface. The fine teint of the young shoots is brilliantly contrasted with the rich hue of the full-grown leaves. The blossom is white, having the corolla six-parted, and about the same size as that of the lilach, which it also resembles in growth, except that the footstalks to the flowers of the cinnamon-tree are longer than those of the former shrub, consequently, the bunch of flowers is less compact. The blossoms are produced from the axillæ of the leaves, or from the extremities of the branches; the scent, although weak, is extremely pleasant, resembling a mixture of the rose and lilach. The fruit is a small berry of the form and consistence of an olive, and is filled with a bony kernel. It ripens in the latter end of autumn, and is gathered by the natives for the purpose of extracting its oil, which they use to perfume their hair, and to anoint themselves with upon grand occasions. This oil, when congealed, becomes of a solid substance like wax, and is formed into candles, which are reserved for the use of the king of Candy. The oil also is burned in the lamps of his audience-chamber, when he receives the ambassadors of other states.

The *Laurus cinnamomum* grows wild in many parts of Ceylon, but it flourishes in the southwest angle of the coast only, between Negumbo and Matura, where the soil is a fine white sand, and where the air is moist, and rains fall every month. In the northern extremity of the island, where the climate is dry and sultry, not a bush of it is to be seen. The principal woods or gardens where the cinnamon is procured, lie in the neighbourhood of Columbo. The grand garden near that town, occupies a tract of country twelve miles in circumference. Others of a smaller size are situated near Negumbo, Point de Galle, and Matura. The prospect around Columbo, is exquisitely beautiful: the plantation which covers the plain, is bounded on one side by a broad belt of cocoanut-trees, and on another is washed by the winding lake of Columbo; beyond this luxuriant foreground, rise groves of evergreens, interspersed with tall clumps, among which the cashew-tree is conspicuous; and the whole is crowned by a long and lofty range of Candian mountains. The cinnamon-gardens afford delightful rides to the inhabitants of Columbo, roads being cut among the shrubs, which make a winding circuit of seven miles. The ground is gently undulated, and the rich green of the laurel is enlivened by innumerable species of beautiful plants and flowers springing up spontaneously, and blooming in perpetual succession.

The cinnamon-tree emits no scent while growing, except a little from the blossoms; the footstalks and leaves are slightly aromatick, but it is the bark alone which gives out that delicious odour, to which no other perfume bears any resemblance. Moore's simile is perfectly true to nature, as respects this tree:—

> The dream of the injured patient mind
> That smiles at the wrongs of men,
> Is found in the bruised and wounded rind
> Of the cinnamon, sweetest then.

There are several different sorts of cinnamon-trees in Ceylon; of these only four are esteemed fit for use: they are, the *Rasse Coorundoo*, or honey-cinnamon; the *Nai Coorundoo*, or snake-cinnamon; the *Capara Coorundoo*, or camphire-cinnamon; and the *Cabatte Coorundoo*, or bitter-cinnamon. From the third kind, a gummy substance containing camphire is exuded. The shrub may be cultivated in either of the following ways:—by seeds which must be sown in the rainy season; by shoots cut from large trees; by layers; and, fourthly, by transplanting the old stumps.

The first method is of course the slowest, as it is ten years before the tree reaches its greatest perfection. The second mode is less tedious, but, unless the sprouts be continually watered, they do not thrive; the cuttings must be taken very young, if they have more than three leaves they die. The third method, by laying down the young branches, is also of slow progress; trees thus raised not being fit for use till they are eight years old. The fourth manner is that generally practised. The roots, carefully transplanted, yield shoots of the proper size twelve months after their removal, but great care must be

taken that none of the small fibres are injured; as if they receive the slightest hurt, the plant certainly dies: even a scratch upon the root of a young plant will destroy it. Around the old roots spring up a multitude of suckers which yield the finest cinnamon.

The cinnamon-tree blossoms in January, in April the fruit is ripe, and soon afterward the business of decortication begins. May and June, which are the most favourable months, are styled the *great harvest;* November and December, in which also the barking is practised, are called the *little harvest.* The art of stripping the cinnamon-tree is an employment of itself, and of the meanest kind. For this reason it is left to the Choliahs or Coolies alone, who form the lowest of the native castes. Any other individual who should follow this business, would be ignominiously expelled from his tribe. The manner in which the workmen judge whether a branch or offset be fit for cutting is this:—When a tree bears fruit, it is supposed to be in a healthy state; and to prove whether the bark be ripe, the Choliah strikes his hatchet obliquely into a branch; if, on drawing it out, the bark divides from the wood, the cinnamon has attained its maturity; if not, it must remain growing some time longer. The shoots which are cut down are from three to five feet in length, and about three quarters of an inch in diameter. When a Choliah has cut the quantity of sticks which each man is obliged to furnish daily, he carries them to a hut or shed situated in an open part of the garden, where, with the assistance of a companion, he thus strips off the bark: The first part of the operation, after removing the buds and leaves, is to scrape the rod thoroughly, but gently. so as to remove the outer bark or skin, which, if left on, would embitter the flavour of the cinnamon. The knife used, is of a peculiar form, being convex on one edge, and concave on the other, in order to facilitate the process. The bark is next cut along with the point of the knife, from one end of the branch to the other twice, and, after being gradually loosened with the convex edge of the knife, is stripped off in one entire slip, about half the circumference of the branch. The smaller pieces are then inserted into the larger ones, and are laid out on mats to dry; when, the moisture quickly evaporating, the tubes contract and form solid rods, acquiring at the same time the rich brown colour in which they appear to us. These rods are tied together in bundles, and carried to the government storehouses, in order to be packed for exportation. The method of packing is this:—Each bundle being formed of the weight of ninety-two pounds, and about four feet in length, is firmly bound with cords, and sewed into a double covering of coarse cloth. When one layer of bales is stowed in the hold of a ship, a quantity of loose black pepper is thrown in above it, and all the crevices are completely filled up with the latter spice. The surface being then smooth, another set of bales is laid down, and packed in the same manner. The pepper, by drawing the superfluous moisture to it, preserves and improves the cinnamon, which, at the same time, enriches its own flavour: thus the two spices prove mutually beneficial to each other. Pepper is not grown in sufficient quantities in Ceylon, to answer the demand for packing, therefore a great deal is imported for that purpose from Malabar.

The cinnamon-bark, before it is dried, is of a pale yellow, and about the thickness of parchment. The best is rather pliable, and by that quality is distinguished from the inferiour kinds, as well as by its colour; the more ordinary being thicker and browner. After that part of the cinnamon which is fit for exportation, is sent off to Europe, the fragments and small pieces are collected and put into large tubs, with just enough water completely to cover them. This mass, after being left for six or seven days to macerate, is distilled over a slow fire, and cinnamon-water is produced, with the oil floating upon the top of it. The latter is then carefully skimmed off, and put into bottles, which, after being sealed, are brought to the governour, by whom they are placed in a chest properly secured. The oil is extremely valuable, as the quantity is less than can be procured from an equal weight of any other spice.

The cultivation of cinnamon, as at present practised, is not of very long standing in Ceylon; the trade formerly depended upon the produce of the trees growing wild in the island. The Dutch governour, Falk, who died at Columbo in 1781, not believing in the common notion, that cinnamon was good in its wild state only, determined to make the experiment of cultivation with it. Accordingly, he raised a few plants from seed in his garden at the Grand Pass, near Columbo, but, after flourishing for a time, they withered and died. On accurately investigating the cause of his disappointment, it appears that a Cingalese, who earned his livelihood by barking cinnamon in the woods, fearing lest his employment should, by the cultivation of the shrub, become more easy and less profitable, had secretly besprinkled the plants with hot water. However, not discouraged, the governour caused many more berries to be planted in various places, particularly round Columbo, where he formed the present garden.

"MY NATIVE LAND, FAREWELL."

THE following beautiful lines, were written by our accomplished countrywoman, Mrs. White, the wife of Colonel J. M. White, the representative from Florida.

The lines were addressed to the father of Mrs. White, on the eve of her leaving New York for Europe, some two or three years since. Mrs. White is now again in Europe, with the hope of regaining her health. She went out in company with our Minister to France, and his excellent family.—[Nat. Int.]

Farewell to thee, land of my birth,
Though I leave thee to wander afar,
Thou art dearer to me than the rest of the earth—
Ah, dear as my own natal star.
And though I should see thee not—even for years—
I shall think of thee always, and often in tears.

Farewell to thee, land of my sire!
Abode of the brave and the free!
If ever man cherish'd a patriot's fire,
And worshipped his country, 'twas *he.*
Oh, how could I part from his loved native shore,
If I fancied his arms would enfold me no more!

Sweet *home* of my mother, farewell!
As *his* I recalled thee with pride—
As *hers* such fond thoughts on my memory swell
That utterance chokes with their tide.
If the *thought* of *her* only thus thrills thro' my heart,
Could I see her once more—should I ever depart?

Bright scenes of my childhood, adieu!
Sweet haunts of my half-opened mind:
And ye sports, Love and Youth, consecrated by you—
Oh, how shall I leave ye behind?
To part thus from brothers, from sisters, from friends,
Is there aught upon earth that can make me amends?

THE LOST ONE.

A "LIVE-OAKER," employed on the St. John's river, in East Florida, left his cabin, situated on the banks of that stream, and with his axe on his shoulder, proceeded toward the swamp in which he had several times before plied his trade of felling and squaring the giant trees that afford the most valuable timber for naval architecture and other purposes.

At the season which is the best for this kind of labour, heavy fogs not unfrequently cover the country, so as to render it difficult for one to see farther than thirty or forty yards in any direction. The woods, too, present so little variety, that every tree seems the mere counterpart of every other; and the grass, when it has not been burnt, is so tall that a man of ordinary stature cannot see over it, whence it is necessary for him to proceed with great caution, lest he should unwittingly deviate from the ill-defined trail which he follows. To increase the difficulty, several trails often meet, in which case, unless the explorer be perfectly acquainted with the neighbourhood, it would be well for him to lie down, and wait until the fog should disperse. Under such circumstances, the best woodsmen are not unfrequently bewildered for a while; and I well remember that such an occurrence happened to myself, at a time when I had imprudently ventured to pursue a wounded quadruped, which led me some distance from the track.

The live-oaker had been jogging onward for several hours, and became aware that he must have travelled considerably more than the distance between his cabin and the "hummock" which he desired to reach. To his alarm, at the moment when the fog dispersed, he saw the sun at its meridian height and could not recognise a single object around him.

Young, healthy, and active, he imagined that he had walked with more than usual speed, and had passed the place to which he was bound. He accordingly turned his back upon the sun, and pursued a different route, guided by a small trail. Time passed, and the sun headed his course: he saw it gradually descend in the west; but all around him continued as if enveloped with mystery. The huge gray trees spread their giant boughs over him, the rank grass extended on all sides, not a living being crossed his path, all was silent and still, and the scene was like a dull and dreary dream of the land of oblivion. He wandered like a forgotten ghost that had passed into the land of spirits, without yet meeting one of his kind with whom to hold converse.

The condition of a man lost in the woods, is one of the most perplexing that can be imagined by a person who has not himself been in a like predicament. Every object he sees, he at first thinks he recognises, and while his whole mind is bent on searching for more that may gradually lead to his extrication, he goes on committing greater errours the farther he proceeds. This was the case with the live-oaker. The sun was now setting with a fiery aspect, and by degrees it sunk in its full circular form, as if giving warning of a sultry morrow. Myriads of insects, delighted at its departure, now filled the air on buzzing wings. Each piping frog arose from the muddy pool in which it had concealed itself; the squirrel retired to its hole, the crow to its roost, and, far above, the harsh croaking voice of the heron announced that, full of anxiety, it was wending its way to the miry interiour of some distant swamp. Now the woods began to resound to the shrill cries of the owl; and the breeze, as it swept among the columnar stems of the forest-trees, came laden with heavy and chilling dews. Alas, no moon with her silvery light shone on the dreary scene, and the Lost One, wearied and vexed, laid himself down on the damp ground. Prayer is always consolatory to man in every difficulty or danger, and the woodsman fervently prayed to his Maker, wished his family a happier night than it was his lot to experience, and with a feverish anxiety waited the return of day.

You may imagine the length of that cold, dull, moonless night. With the dawn of day came the usual fogs of those latitudes. The poor man started on his feet, and with a sorrowful heart, pursued a course which he thought might lead him to some familiar object, although, indeed, he scarcely knew what he was doing. No longer had he the trace of a track to guide him, and yet, as the sun rose, he calculated the many hours of daylight he had before him, and the farther he went continued to walk the faster. But vain were all his hopes: that day was spent in fruitless endeavours to regain the path that led to his home, and when night again approached, the terrour that had been gradually spreading over his mind, together with the nervous debility induced by fatigue, anxiety, and hunger, rendered him almost frantick. He told me that at this moment he beat his breast, tore his hair, and, had it not been for the piety with which his parents had in early life imbued his mind, and which had become habitual, would have cursed his existence. Famished as he now was, he laid himself on the ground, and fed on the weeds and grass that grew around him. That night was spent in the greatest agony and terrour. "I knew my situation," he said to me. "I was fully aware that unless Almighty God came to my assistance, I must perish in those uninhabited woods. I knew that I had walked more than fifty miles, although I had not met with a brook from which I could quench my thirst, or even allay the burning heat of my parched lips and blood-shot eyes. I knew that if I should not meet with some stream I must die, for my axe was my only weapon, and although deer and bears now and then started within a few yards or even feet of me, not one of them could I kill; and although I was in the midst of abundance, not a mouthful did I expect to procure, to satisfy the cravings of my empty stomach. Sir, may God preserve you from ever feeling as I did the whole of that day!"

For several days after, no one can imagine the condition in which he was, for when he related to me this painful adventure, he assured me that he had lost all recollection of what had happened. "God," he continued, "must have taken pity on me one day, for, as I ran wildly through those dreadful pine-barrens, I met with a tortoise. I gazed upon it with amazement and delight, and, although I knew that were I to follow it undisturbed, it would lead me to some water, my hunger and thirst would not allow me to refrain from satisfying both, by eating its flesh, and drinking its blood. With one stroke of my axe the beast was cut in two, and in a few moments I despatched all but the shell. Oh, sir, how much I thanked God, whose kindness had

put the tortoise in my way! I felt greatly renewed. I sat down at the foot of a pine, gazed on the heavens, thought of my poor wife and children, and again, and again thanked my God for my life, for now I felt less distracted in mind, and more assured that before long I must recover my way, and get back to my home."

The Lost One remained and passed the night, at the foot of the same tree under which his repast had been made. Refreshed by a sound sleep, he started at dawn to resume his weary march. The sun rose bright, and he followed the direction of the shadows. Still the dreariness of the woods was the same, and he was on the point of giving up in despair, when he observed a rackoon lying squatted in the grass. Raising his axe, he drove it with such violence through the helpless animal, that it expired without a struggle. What he had done with the turtle, he now did with the rackoon, the greater part of which he actually devoured at one meal. With more comfortable feelings, he then resumed his wanderings—his journey I cannot say—for although in the possession of all his faculties, and in broad daylight, he was worse off than a lame man groping his way in the dark out of a dungeon, of which he knew not where the door stood.

Days, one after another, passed—nay, weeks in succession. He fed now on cabbage-trees, then on frogs and snakes. All that fell in his way was welcome and savoury. Yet he became daily more emaciated, until at length he could scarcely crawl. Forty days had elapsed, by his own reckoning, when he at last reached the banks of the river. His clothes in tatters, his once bright axe dimmed with rust, his face begrimmed with beard, his hair matted, and his feeble frame little better than a skeleton covered with parchment, there he laid himself down to die. Amid the perturbed dreams of his fevered fancy, he thought he heard the noise of oars far away on the silent river. He listened, but the sounds died away on his ear. It was indeed a dream, the last glimmer of expiring hope, and now the light of life was about to be quenched for ever. But again, the sound of oars awoke him from his lethargy. He listened so eagerly, that the hum of a fly could not have escaped his ear. They were indeed the measured beats of oars, and now, joy to the forlorn soul! the sound of human voices thrilled to his heart, and awoke the tumultuous pulses of returning hope. On his knees did the eye of God see that poor man by the broad still stream that glittered in the sunbeams, and human eyes soon saw him too, for round that headland covered with tangled brushwood boldly advances the little boat, propelled by its lusty rowers. The Lost One raises his feeble voice on high;—it was a loud shrill scream of joy and fear. The rowers pause, and look around. Another, but feebler scream, and they observe him. It comes—his heart flutters, his sight is dimmed, his brain reels, he gasps for breath. It comes—it has run upon the beach, and the Lost One is found.

This is no tale of fiction, but the relation of an actual occurrence, which might be embellished, no doubt, but which is better in the plain garb of truth. The notes by which I recorded it were written in the cabin of the once lost live-oaker, the fourth year after the painful incident occurred. His amiable wife, and loving children, were present at the recital, and never shall I forget the tears that flowed from them as they listened to it, albeit it had long been more familiar to them than a tale thrice told. Sincerely do I wish, good reader, that neither you nor I may ever elicit such sympathy, by having undergone such sufferings, although no doubt such sympathy would be a rich recompense for them.

It only remains for me to say, that the distance between the cabin and the live-oak hummock to which the woodsman was bound, scarcely exceeded eight miles, while the part of the river at which he was found, was thirty-eight miles from his house. Calculating his daily wanderings at ten miles, we may believe that they amounted in all to four hundred miles. He must, therefore, have rambled in a circuitous direction, which people generally do in such circumstances. Nothing but the great strength of his constitution, and the merciful aid of his Maker, could have supported him for so long a time.

Audubon.

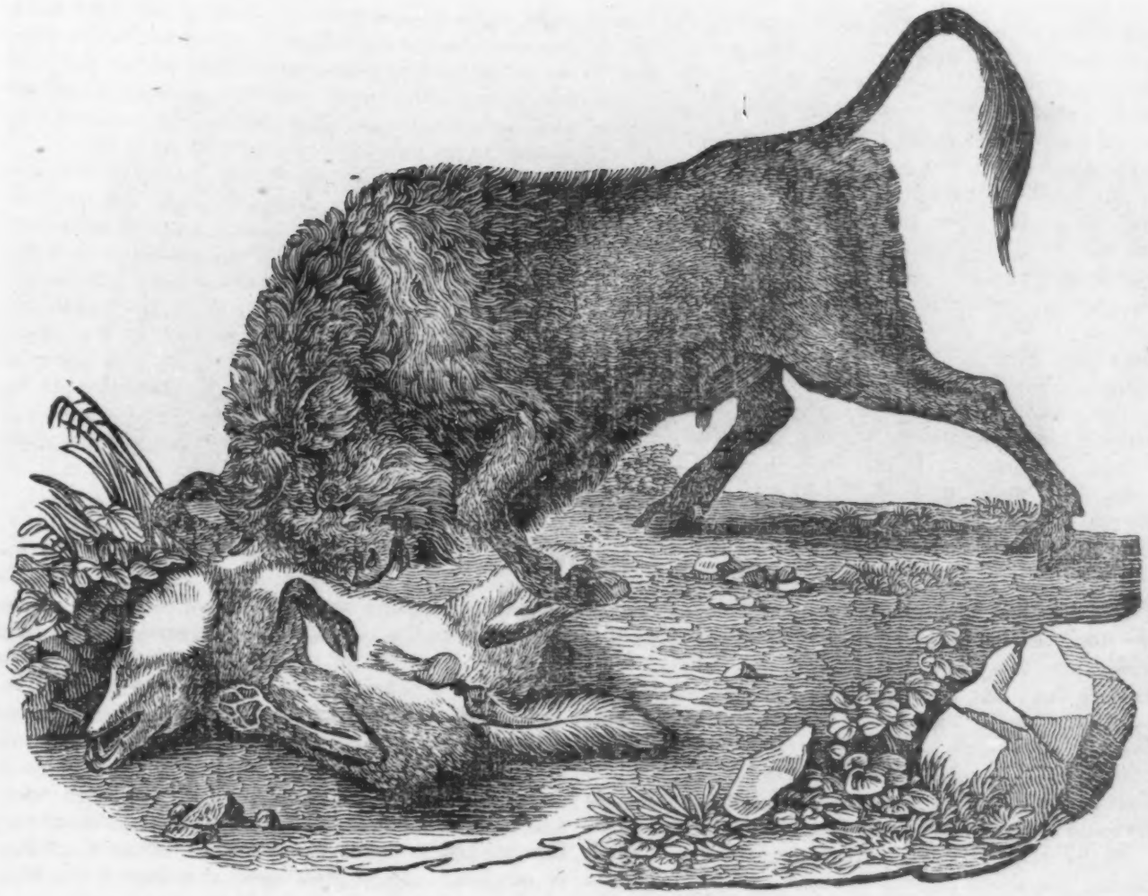
Fox-coloured Sparrow.—Dr. Wilson, who was almost in the daily habit of visiting my friend Bachman, with whom it was my good fortune to reside while at Charleston, was fond of talking about birds, many of which he knew more accurately than ordinary ornithologists are wont to do. "My dear Mr. Audubon," he said, "I have several beautiful fox-coloured sparrows in my aviary, but of late some of them have been killed, and I wish you would tell me by what other birds the murders can have been committed." I laid the charge first on the bluejays; but he replied that even they appeared as if greatly molested by some other species. A day elapsed, the doctor returned, and astonished me not a little, by informing me that the culprit was a mockingbird. I went to his house on the eighth of December; and, while standing on the piazza, we both saw the mockingbird alight on one of the fox-coloured sparrows, in the manner of a small hawk, and peck at the poor bird with such force, as to convince us that its death must soon ensue. The muscular powers of the finch, however, appeared almost too much for the master-songster of our woods; it desisted for a moment, out of breath, and we could observe its pantings; but it did not fail to resume its hitherto unknown character of tyrant. A servant was despatched to the rescue, and peace was restored; but the finch was almost reduced to its last gasp, and shortly after expired. This very mockingbird we strongly suspected of being the individual that had killed a bluejay of exceedingly meek disposition, a few weeks before. It was ultimately removed into a lonely cage, where it is yet passing its days, perhaps in unavailing penitence. Audubon.

NATURAL HISTORY.

THE GAYAL.

THERE are several species of the genus to which our domestick ox belongs. The one represented at the head of the following page, is the largest.

The gayal, *Bos gavæus*, has sometimes been considered as a bison; but it has few or none of the characters of the true bisons. These are light and agile animals for their size, and have great part of



[The Gayal.]

their power thrown into the neck. The gayal, on the other hand, is a heavy and clumsy animal; and the neck, especially the part of it next the head, is small and feeble. The only character which it has in common with the bisons, other than those which belong to the whole genus *bos*, is that of fourteen pairs of ribs; and, although our domestick oxen, and the varieties of other countries which most resemble them, have only thirteen pairs, yet fourteen is not a constant, and therefore cannot be regarded as properly a typical character of the bisons. The Eastern one has fourteen, but the American has fifteen.

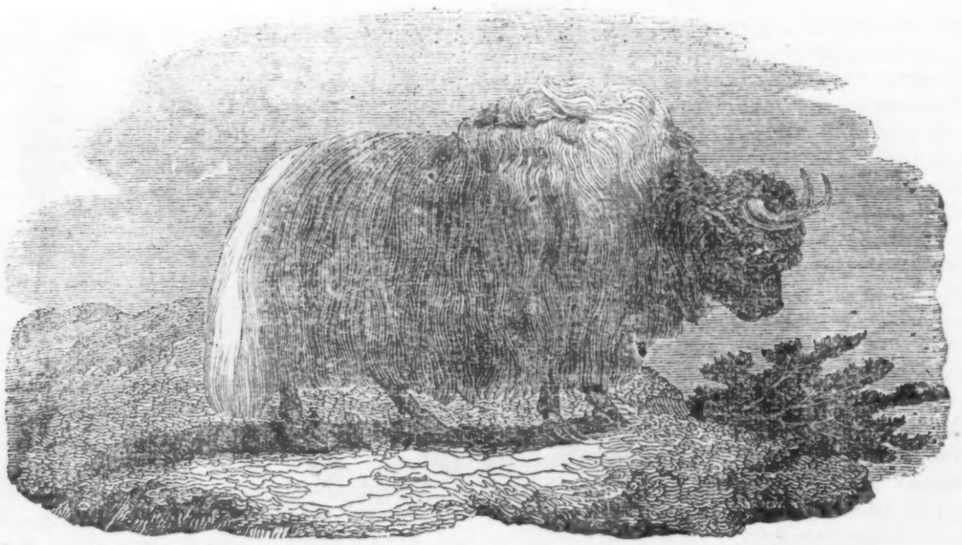
The full-grown male of the gayal is nine feet and a half long, and exactly half as much in height. The body is rounded and rather clumsy in appearance; and both the middle of the back and the setting of the neck are depressed, which give a hump-like appearance to the interscapular portion of the ridge; but there is no true hump; yet, in consequence of this ridgy appearance, the animal stands four or five inches higher on the fore-legs than at the crupper, and the hinder part of that curves downward to the tail, which is slender and not very long.

The front is square, broad and flat, the insertions of the horns being ten inches apart. The horns curve slightly outward and upward, while the ears, which are nearly of the same length as the horns, and slender in proportion to their length, droop down till their direction is nearly the reverse of that of the horns. The eyes are rather small in proportion to the size of the animal. Both sexes have a small tuft of white curled hair between the bases of the horns, which curls down upon the forehead. The dewlap is large and pendulous, and makes the portion of the neck next the head appear more feeble than it really is; it also gives an apparent depth to the chest, out of all proportion to its width. The abdomen is large, but contracts toward the groin, as if the body were slightly compressed by a girdle there. The udder of the female is small. The legs are thick and stout; the principal hoofs broad, and the false ones much larger in proportion than those of the domestick ox. The hair is very short, with the exception of that on the forehead, already mentioned, and a small bunch on the end of the tail. The colour is brown in various shades. The characters and also the habits of this animal resemble the ox more than they do the buffalo; but it breeds indiscriminately with either.

It is chiefly found upon the southwestern and southern slopes of the secondary hills to the Himalaya, and on those to the south of the Burhampûtra. When in the wild state, it is rather a woodland or jungle animal; but it is domesticated in large herds by the people to the eastward of India. It does not extend into the dry districts.

THE YAK.

The Yak, *Bos grunniens* of Pallas, is not very accurately named by that naturalist, as its voice is a sort of subdued and broken low, rather than a grunt. This is the mountaineer of Central Asia, being found in the Himalaya and Altai ridges, and in the connecting ones, and their spurs eastward as far as

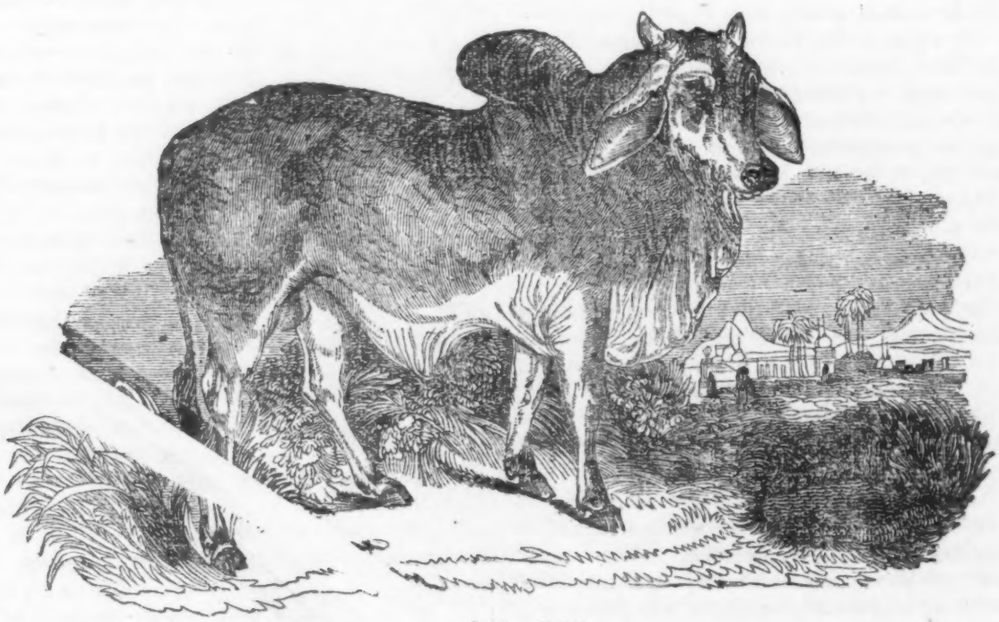


[The Yak.]

China. It has been classed with the bisons, and in the northern extreme of its geographical range, it is understood to trench closely upon the habits of the eastern one; but it is an animal domesticated to a very considerable extent; and its characters are more peculiar than those of many others of the genus. It has the same number of ribs as the bisons, and the forehead is a very little arched; but the resemblance between them extends little farther.

In the more elevated portions, it is rather a small animal, not above three feet and a half in height at the shoulder, and seven feet in length; but in its more fertile pastures it attains a larger size. In the form of its head there is a slight resemblance to the buffaloes; but the character of the horns is more that of the ox. They are lateral in their insertion, and do not advance toward each other on the frontal ridge as in these animals. One of the most peculiar parts of it is the tail, which is covered all over with long hair like that of the horse, only the texture of the hair is much finer. Their tails are in much request both in India and the Turkish empire. In the former they are used for fanning off the flies, and among the Turks they are used as insignia of rank. They take a fine die, the stumps are often richly and beautifully ornamented, and they have a very flowing and graceful appearance. When a bashaw of so many tails is mentioned, it means the number of the tails of the yak which he is allowed to have carried when he rides in state.

We shall now notice some of the most remarkable of the Asiatick species or varieties; but to enumerate all, or even a slight approximation to all, would be a very long, and not a very profitable task.



[The Brahminy Bull.]

THE BRAHMINY BULL.

The general shape of the Brahminy bull, which is the sacred bull in most parts of India, and especially in the valley of the Ganges, may be under-

stood from the figure. In Benares, and those other cities which are crowded with the more wealthy and devout Hindoos of high caste, these animals are exceedingly numerous, thronging the streets, and the courts, and areas of the temples. They are fed to the utmost profusion, and they are very fat, indolent, and inoffensive. When left without these attentions, they are smaller and much more active, but they have been so long domesticated, or rather under the protection of the people, that there are many varieties in appearance. When they are fat, the hump on the shoulders and the dewlap are very much produced, and in all conditions they have the skin of the neck furrowed with transverse wrinkles. Their general colour is dun, passing into blackish on the upper part, and whitish on the under. There are many varieties of these hunch-backed ones in India, but it is not easy to say which is the original race, or whether those which are found wild be in a state of nature, or have been left in the changes of society which the country has undergone. These humped oxen have the voice less deep than the others, and the form of the hind quarters and the insertion of the tail are different from the European varieties.

CRUISE OF THE SPARKLER.

It was upon a bright morning in July, 1814, that the American privateer schooner Sparkler, which had been becalmed for eight and forty hours, about sixty miles outside the Bermudas, at last caught the breeze from the northwest and made all sail for the south'ard and east'ard.

She was of that class of vessels designated in nautical parlance, "Baltimore clippers:" and it needed but one glance at her symmetrical form to perceive that she was well worthy of her name. About two hundred tuns in burden, long, low and sharp, she was yet of great breadth of beam, while her beautiful tapering masts seemed almost to reach the sky.

Upon her snow-white decks, which were without spring or rise, were mounted sixteen long brass twelve pounders, eight on a side, not run out of the ports, as in a man-of-war, but slewed fore and aft: while her ports were closed, and her hull painted so exactly like that of a merchantman, in various colours, that it required a sharp eye and near observation to discover that she was other than she seemed, a peaceful merchant vessel from Fell's Point, bound to the Spanish Main.

In addition to her batteries, she mounted midships, upon a traversing carriage, a long brass forty-two pounder, while her cutlass-racks, arm chests, and boarding-pikes, the last lashed to the boom, showed she was also well prepared for close quarters, and to finish by boarding the work cut out by the great guns. She was withal well manned. Of her crew of one hundred and eighty men, the greater part were now upon deck, having just finished making sail, and in their dark faces and muscular forms, as they carelessly lounged about, might be read the proof that these trusts were bestowed worthily, upon men who would fight to the death in defence of their striped and spangled bunting.

The captain of the privateer, dressed with some pretensions to nicety, but wearing a common tarpawling, had been walking fore-and-aft, along the starboard-quarter-deck for half an hour, in silence, carelessly swinging the spy-glass, with which, ever and anon, he swept the horizon; he now paused in his promenade, and addressed the first mate.

"Mr. Townsend, I don't like these Irish hurricanes. Here we are eight days from Hampton Roads, and only just clear of Bermuda. We must make more easting soon, or we shall lose the outward bound West Indiamen, and be compelled to trust to chance customers."

"Very true, Captain Benson," replied the first mate, who was at this moment standing on a gun, and leaning against the starboard bulwarks: "but——

"Sail ho!" sung out the look-out aloft.

"Where away!" hailed Benson, while all hands sprung up at the announcement.

"Right ahead, sir," was the reply.

This news spread life throughout the vessel, and all hands being instantly mustered, ring-tails and bonnets were rigged, sail increased as much as possible, and our schooner wing-and-wing, continued her course, bearing down for the stranger; while her crew, delighted at the prospect of something *professional*, were speculating as to the value of the chase and the consequent amount of prize-money.

In half an hour, Benson hailed the look-out; "mast head, there! what do you make her out to be?"

"A large ship, sir," replied the look-out; "her starboard-tacks boarded, standing southwest."

"Keep her more to the south'ard, Mr. Townsend," said Captain Benson, on receipt of this information, "we'll cut her off."

"She's a stout lump of a ship, sir," replied the mate as he obeyed the order, "she may be a man-of-war."

"Very good, we have the weathergage," answered Benson, as he went forward to take another look.

In an hour's time the stranger was plainly to be seen. She was evidently a large ship, and from her build and appearance looked much like a man-of-war. This seemed more fully apparent a short time after: for the chase, which had till now appeared unconscious of the presence of the privateer, suddenly hauled her wind and made all sail towards her, while the rapidity with which her course was changed, and her canvass crowded, seemed proof positive that she was a man-of-war.

This manoeuvre produced some surprise on board the Sparkler.

"A Scotch prize, Captain Benson," observed the first mate as he handed him the glass.

"Perhaps so," replied Benson composedly, "clear away long Tom there, and double shot both batteries, we will soon see what she is."

It was now about noon, and the vessels being on opposite courses, had approached within five miles of each other, and this distance was rapidly diminishing.

"The chase is now within range, sir," reported Townsend.

"Very good, sir. Let drive at him with long Tom and send up the gridiron at the fore," replied Benson.

The flag of the United States waved in the breeze, and the forty-two spoke in thunder the moment the order was given.

This was a touch of his quality, which the chase had not expected at the hands of the privateer, and

the smoke clearing up, showed her bearing off before the wind, crowding all sail.

"So much for your man-of-war, Mr. Townsend," said Benson, pointing out this change of course; "she is pulling her heel, and goes off before the wind because that is the worst point in a schooner's sailing. Run out the batteries, load long Tom, and open the magazine. We will try this fellow a little any how."

Meanwhile, on board the English West Indiaman, (for such was the stranger,) all was confusion and dismay. Her commander had from the first suspected the schooner was an American privateer, but had adopted the bold course of standing towards her in chase, to give the impression that he was a man-of-war, well knowing that it was in vain to hope to escape by superiour sailing from a Baltimore clipper. The report of the Sparkler's long forty-two, however, and the sight of the shot, which struck the water just ahead of him, had dispelled all his hope of frightening her; and now, as a last resource, he put his helm up, and bore away to the southeast, hoping to leave his pursuer astern until some other ship might heave in sight to save him.

This was certainly his wisest course, and his vessel being a fast sailer, and under a press of canvass, made rapid headway. She was the largest class of English West Indiamen, about twelve hundred tuns in burden, and was now from Plymouth, bound to Kingston, Jamaica, with a very valuable cargo, and a number of passengers; and, to defend the whole carried sixteen twelve pounders and a crew of forty men.

"Clear away those guns, my lads, and open the magazine," said the commander of the Indiaman, who, though he wished to escape, yet had a stomach for dry knocks; "I wish we had a forty-two pounder, for then we'd fight the Yankees on better terms."

"I hope, Captain St. John," said a passenger, who at this moment came up to the companion-way, "I hope, sir, you do not intend to fight the American."

"Certainly I do, Mr. Tompkins," replied St. John, "he shall not take all our cargo, and the ship into the bargain, without fighting for it, I promise you. Why, our cargo alone is worth fifty thousand pounds sterling! Jonathan shall not make his fortune this time if I can prevent him."

"But sir," continued Tompkins, anxiously, "consider the lady passengers. I beg you, sir, to surrender to the American, and perhaps he will treat us well, while, if you fight him, he will be enraged, and ——"

"Kill all our males, and carry our women and children into captivity beyond Babylon, as the scripture has it," interrupted St. John, hastily—"Consider the devil! All the ladies have to do, is to stay below and be quiet; and you, doubtless will fight to the last in defence of your wife and daughter; so there's another hand to work our guns. I mean he shall treat us well, and as for his rage, why we'll get angry too. Come, Mr. Tompkins, there's a musket for you."

"I sha'n't touch it, sir," said Mr. Tompkins, "it's against my principles to fight, and I will bring the matter before the passengers, to see if they will permit you to throw away their lives in this manner;" and so saying, he went below.

"Good pluck, that," said St. John, laughing at the bravery of his live freight; "however, perhaps ——"

Whizz-z-z came a forty-two pound shot from the long Tom of the privateer, which interrupted his soliloquy, and passed through his main-royal, and shortly after, another walked through the bunt of all three top-sails; and a moment after, a third struck his starboard quarter, knocking the splinters about in every direction, while the ladies below screamed at the top of their lungs to mend the matter.

"Now, my lads," said St. John, quietly addressing his crew, "send up our ensign at the peak, and stand by to shorten sail."

Continuing his course for a moment, that the privateer might distinctly see his colours, he then put down his helm, hauled close upon the wind, and stood towards her, justly considering it folly to attempt farther escape while every shot raked him fore and aft. That he might go into action in true man-of-war fashion, St. John next ordered to take in the royals, fore and mizzen top-gallant-sails, and flying-jib; hauled up the courses, and depressed both batteries for close quarters, and made every preparation for small arms and cutlasses, to beat off the privateer if possible, and, in any event, to send some of the Jonathans to Davy's locker.

This change in the Englishman's course produced a corresponding one in the privateer. He shortened sail, and perceiving that the Indiaman intended to show fight, continued to blaze away with his long forty-two, directing his shots solely to her decks, not wishing either to carry away her spars, or hit her between wind and water, and thoroughly understanding gunnery, his round shot coursed along the decks and cabin of the Indiaman with terrible precision, causing some fright and some positive injury to her timid passengers.

They were, however, soon huddled up in the run in security, not one caring to fight for his dinner; St. John having coldly told them that they would certainly be captured by the privateer, but that he was determined to have the satisfaction of peppering the Yankees somewhat any how.

This, however, was not so safe an undertaking; for, as the privateer rapidly neared them, grape-shot were added to round in her forty-two, which scattered around with their wonted fatal and appalling effect, while the round shot continued to perform his usual careful and scientifick manner, tearing up the decks, dashing in the bulwarks, and knocking those terrible missiles, the splinters, among the crew; while the crowds of armed men, now distinctly seen clustering about the decks of the privateer, showed full plainly that she was amply prepared for the combat hand to hand.

As one after another of the Indiaman's crew were cut down by one or the other of these destructives, the remainder, instead of being cowed, were, with true bull-dog spirit, only the more exasperated, working ship with great speed and undaunted bravery; and when the privateer began to open upon them with his larboard battery, they immediately returned the same in coin very spiritedly; and the long forty-two of the American being now neglected for the moment, the combat became more equal, each vessel working eight twelve-pounders of a side.

The commander of the privateer was much surprised at meeting such determined resistance where

he had expected abject submission; and as the vessels neared, soon became aware, from the destructive effect of the English fire upon his crowded decks, that he must put an end to the present game immediately and trust to boarding for success. He accordingly changed his course so as to pass across the bows of the Indiaman, intending to rake him thoroughly and then board him; but St. John, who was now in his element, loudly cheering his men, and fighting most determinedly, was fully aware of his intention; and falling off before the wind also, he let drive his whole starboard-battery down upon the decks of the American and among his rigging, carrying away her fore-gaff, and the throat and peak-halyards of her mainsail; which last came thundering down by the run; and then, despite the broadside of the schooner, which swept along his decks in thunder and flame, he instantly hauled again upon the wind; so that, disabled as was the privateer, she lay right in his course, and was apparently doomed to be run down by the immense hull of the Indiaman.

This seemingly inevitable result was prevented, and the whole aspect of the combat changed by one of those small events which have so often turned the tide of battle.

At the moment of receiving the Indiaman's broadside, there were two men at the privateer's wheel; the one at the lee-wheel was instantly killed by a grape-shot, while the other, who escaped unhurt, in his endeavour to free the wheel from the grasp of the dying man, forgetting that the helm was a spoke or two a-lee, put it hard up. The schooner still had headway upon her, and the wind, acting upon her disabled sails, suddenly brought her head around to port, so that, she being a point upon the Indiaman's starboard bow, her jib-boom just swept clear of the ship's cutwater, and in an instant she was lying along her weather-side, afoul.

"Boarders away!" shouted Benson, perceiving his advantage; and despite a volley of musketry, which laid low a dozen of his best men and wounded more, he was instantly upon the Indiaman's deck, backed by a hundred men. The combat now was brief, and the English captain being struck down, his men conceived further resistance useless, and hauling down their colours, surrendered; having thus far kept at bay a most overwhelming force, with a determination and effect which proved them worthy representatives of the English name.

Quarters being given to all, the wounded were handed over to the surgeon of the privateer, and the remainder of the Indiaman's crew were sent on board of the schooner. The Americans then set about securing their prize and repairing damages; and before twilight had darkened into night, both vessels were close hauled upon the wind, still from the northwest, standing in for the American coast.

The injury to both vessels was principally in the upper works, spars and rigging, neither having received any material shot between wind and water; so that neither sprung any alarming leak, and what few took place were soon plugged: and so, continuing the repairs of masts, sails, &c., the Indiaman having a stout prize crew, they kept on their course for the land.

The passengers of the Indiaman were treated with the utmost respect, their cabin being left entirely for their use. They were also requested to point out their own private property, which would not in any event be touched; and Capt. Benson having farther assured them that they should be landed at Bermuda if possible, they finally came to the conclusion that he was a very polite fellow, and their lot far from forlorn.

About midnight, the weather having become very thick, it fell a dead calm, and continued until morning.

Now it so happened that an English sloop-of-war of twenty-four guns, though out of sight, had heard the cannonading of the day previous, and from the heavy reports of a single gun at intervals of a minute, became convinced that the gun in question was the long Tom of a Yankee privateer. Acting upon this belief, she had so shaped her course that she would probably be nearly up with the privateer at daybreak, rightly judging, that upon making the capture, the American would steer for the United States' coast. In the darkness she had approached the privateer, though neither party was sensible of this proximity, and being also becalmed, had laid all night within six miles of her.

As the day broke, the wind sprung up from the northeast, and the privateer had just hauled upon it in company with her prize, when the look-out aloft reported a sail!—and sure enough, in plain sight to the southeast, was an English sloop-of-war crowding every thing in chase.

Surprised, Benson no doubt was; but with his usual promptitude his plan of operations was instantly laid; and running the schooner close under the lee of the Indiaman, a line was thrown aboard of her, by means of which three more were passed.

"Now, Mr. Townsend," said Benson, "lower away the stern and quarter boats; lay them alongside and fill them with men. You will go with them on board the Indiaman and make all sail, for in this chase the prize-crew will not be sufficient to work her rapidly; and when you have done that, open her hatches, rig whips and top-burtons, toss her boats overboard, and get the most valuable of her 'tween-decks' cargo on deck with all speed. Farther orders I will transmit by signal or otherwise."

These commands were soon obeyed, and the boats were sent twice full stowed, both vessels being at the time under rapid head-way. Thus a hundred of the privateersmen were on board the ship very shortly, while the boats were hauled back empty to the schooner, and run up at the davits as before.

Thus well-manned, the Indiaman was instantly under a crowd of canvass, and all her damages being repaired, she proved a crack sailer, and about equal on the wind, (their course being northnorthwest,) to the sloop-of-war. The privateer on this, shortened sail to keep abreast of her prize, and all three bowled merrily onward.

"There goes your launch, neighbour," said Benson to St. John, who was walking with him the quarter-deck of the schooner, as the ship's long-boat was tossed over the side according to orders, while the stern and quarter boats followed suit in their small way, thus making quite a fleet adrift, all officers and no seamen, like a French man-of-war. "I hope they will have a pleasant cruise; perhaps the sloop-of-war may pick them up to prevent so shameful a waste of good stuff. That reminds me, by-the-by,

she may be within range—here, haul that forty-two aft, some of you, we'll try Mr. Bull at long-bowls.

The long Tom was accordingly hauled aft, elevated, and let drive; but the distance proved greater than Benson had imagined, for although the shot actually hit the sloop-of-war, it was too nearly spent to do much injury.

This Mr. Bull determined to repay in coin, but having nothing heavier than a twenty-four pounder, was obliged to elevate it so much that the shot fell wide of the mark astern. It showed, however, that the privateer might be hit by a chance shot, and Benson, determining to avoid the possibility, however remote, of being crippled in this manner, changed his position so as to bring the Indiaman between himself and the sloop-of-war; and that they might be fully aware what his prize was, he ordered to send up at her peak the English ensign, under the stars and stripes; and at her mast-heads, her private signal and all the holiday bunting usually sported by English West Indiamen.

By thus placing the Indiaman between himself and his pursuers, where she was more likely to be hit than the schooner, Benson hoped to escape harm through the natural unwillingness of the sloop-of-war to fire upon her own flag.

This was a true Yankee trick, and was, for a time, for the foregoing reason, successful; the sloop-of-war contenting herself with crowding all sail in chase, seldom replying to the shot, which, one after another, with most provoking pertinacity and skill, were pitched always in her vicinity, and frequently plump into her, from the privateer's long forty-two; hoping thereby (herself a prime sailer) to rescue the Indiaman in good order, and compel the privateer either to take to his heels alone, or be sent to the bottom for his covetousness, when she should come down upon him with her reserved fire.

Now all this was very fine; but the sloop-of-war, though one of the crackest sailers in his Majesty's navy when going large, (before the wind,) was not so excellent when close-hauled, and was destitute of the true independent Yankee way of putting the wind's eye out with her flying jib-boom and when on a bow-line; accordingly, at this sentimental game she did not make much.

"Captain Benson," said St. John, as the privateer took up her position as before stated, and was firing at her pursuer as fast as her long Tom could be served, "you would soon escape the sloop-of-war by making sail on the schooner, and leaving my ship to take her chance."

"You don't say so, shipmate?" replied Benson, with a knowing wink and the true Yankee drawl. "Do tell! I don't do that are, sir, by a ——sight."

"Sail ho!" hailed the look-out aloft.

"Where away?" replied Benson quickly.

"To windward, sir," answered the look-out; and in plain sight on the weather-bow, distant not more than eight miles, was a large ship, bearing down, which, in the bustle of the chase, had escaped observation.

"An English frigate, by the Lord!" shouted St. John, jumping on a gun. Now, Captain Benson, what do you say? shall I take command in the name of his Britannick Majesty, God bless him; or will you flog both the sloop and the frigate?"

"Spin that yarn to marines, my fine fellow," replied Benson, quietly, as he removed the glass from his eye. "There's nothing English about that craft if I can read oakum."

"I'll bet you a dinner of stewed cat harpen-legs and a tuck-out of grog on that, brother Jonathan," continued St. John jeeringly; "but what is she then?"

"She is neither American, English, or French," replied Benson, "and that is all I care for. If she was one of Uncle Sam's forty-four gunners, they would be coming in for a share of the prize-money, and I dont want any of their assistance; so I am satisfied as it is. Keep up your fire, my lads. Straight as you go, quarter-master."

The sloop-of-war seemed to have been aware of the presence of the frigate before, for she continued her chase, occasionally firing a gun apparently aimed at the rigging of the Indiaman; and although the frigate was meanwhile rapidly approaching, seemed to think that she, at least, had nothing to fear.

For half an hour such was the state of affairs on all sides, and this time amply sufficed to bring the frigate within half-a-mile of the privateer on her weather-beam, heading as if to pass between her and the sloop-of-war.

Benson now sent up the American flag at the fore, and at the same instant a broad banner blew out clear at the fore-sky-sail mast-head of the frigate, disclosing amidst its rustling folds, the armorial bearings of the battle-ensign of the Danish crown; while far astern, at the mast-head of the sloop-of-war, glancing in the sun-beams, waved the meteor-flag of England. Firing one gun across the privateer's bows, and another across the sloop-of-war's, the frigate continued her course a moment longer, and then hove-to immediately between them, sending up a white flag at her main.

"The English of that, Captain St. John," said Benson, smiling, "is heave-to, send a boat on board, and knock off firing, because I am between you, so belay all with that forty-two, and take a severe turn round the hencoop."

He then made signal for the Indiaman to heave-to, and when she had done so, shortened sail on the schooner, and laid her right alongside of his prize, under her lee.

"Now, Mr. Townsend," said Benson, as his boat was lowered and manned, "you will turn-to all hands, and toss that cargo on board of us as if the devil was after you, while I board the frigate. How's this?" he continued, pausing at the gangway, "the sloop-of-war has not hove-to."

Such was the fact. The sloop-of-war being some three or four miles from the frigate, continued her course without minding the summons of the Dane, and this disobedience of her orders was apparently not observed on board the frigate.

"That's a good one, Johnny War," shouted St. John, clapping his hands: "you perceive, Captain Benson, that my countryman yonder does not care a straw for the frigate's orders. She's neutral, and has no business to interfere."

The Dane, however, was not idle, and waiting quietly until the sloop-of-war was within half a mile of her, she then fired two guns in quick succession, the shot of the first passed merrily over the water just ahead of the Englishman, while the second whistled between his main and mizen masts.

That decided the point: the sloop instantly backed her main top-sail, while her captain, jumping into his boat, pulled for the frigate, chock full of wrath at this interruption of his pastime.

"A race, my lads," said Benson, who jumped into his boat at this moment also; "she's as near the frigate as we are, give way!"

Now the etiquette of men-of-war pronounces it most honourable to board at the starboard gangway, which, as the Dane lay hove-to, was the side toward the privateer, and when her boat was within a few lengths of the ladder, the boat of the sloop-of-war came under the frigate's stern, making for the same gangway, it being, of course, beneath the Englishman's dignity to go on board at the other.

Benson, who was as full of fun as his opponent was of wrath, no sooner became aware of this fact, than he steered directly for the bow of the other boat, and his own being a sharp whale boat, he ran her right aboard with such force and good will, that all the English oarsmen "caught crabs," while their commander, who was standing at the moment, was nearly thrown overboard by the concussion.

"Old England for ever! Rule Britannia!" shouted Benson, as he shoved in at the ladder; "hope you are not drownded, my lord. I say, my lord, I guess that 'are was as solid as one of my forty-two's love taps. What's your opinion, my lord? If a fellow was to serve me such a sweetner as that, my lord, d—n my bloody eyes, my lord, if I wouldn't be into his pork-barrel about east, my lord. I say, Mr. Bull," continued Benson, as he deliberately mounted the ladder, "wouldn't have you expect I meant to do that 'are; Oh! no, my lord, it was all an accident done a-purpose. Come aboard, my lord, after me is manners."

The Englishman, out of all patience, threw a stretcher at Benson's head, and following, as he needs must, since he could not lead, dashed upon deck, boiling over with wrath; while, to add to his vexation, the officers and seamen standing around, though ignorant of English, were laughing heartily at the practical wit of the Yankee.

Once upon the quarter-deck, Benson altered his tone, and uncovering and bowing politely to the Danish captain, he addressed him in French, informing him who and what he was, and where bound, thus giving his version of the story, while the Englishman stood by, awaiting his turn.

At length, he also, in obedience to the commands of the Dane, gave his name and that of his vessel, Captain Stanley, of H. B. M. sloop-of-war L——, and bitterly complained of the interference of a neutral power with his chase of a privateer; and having warmed with his subject, he categorically demanded the name of the vessel and her commander, who had dared to heave-to an English man-of-war; and wound up with the declaration, that unless he was allowed instantly to open his fire upon the American, he would report the Dane to the lords of the admiralty, and through them to the king of Denmark.

"All this is very good, sir," replied the captain of the frigate, not in the least ruffled by the furious tone of the Englishman; "you are on board his Danish majesty's frigate Dannebrog, which I, the Baron Augustus Von Hovenburg, have the honour to command; but now that I have ascertained what you both are, you must allow Captain Benson as much time as will place him as far ahead of you as he was when I first ordered him to heave-to."

"D———d if I do, that's all," growled Captain Stanley.

"But you shall, sir," replied the Baron, secretly wishing to favour the American, though this proposition was only justice. "And, moreover, I shall allow no fighting between you while my ship is in presence."

"Which course does your lordship intend to steer?" asked Benson, very innocently, winking at the Englishman.

"Toward the American coast, sir," replied the Baron, understanding him at once.

"That's just my course, my lord," continued Benson demurely; "and I'll keep under your lordship's lee."

"I'll be d——d if you shall, sir," broke in Captain Stanley, whose patience was fast vanishing before the gibes of the Yankee.

"Don't know how you'll prevent me, sir," replied Benson very composedly, shutting his starboard eye and squinting horribly with the other.

"Quietly, gentlemen, quietly," said the Dane, gravely; "just step into my cabin and take dinner with me, we'll talk this matter over. No refusal, gentlemen, come along."

Captain Stanley, though wishing the Dane at the devil, could not refuse; while Benson, enjoying the fun, gladly accepted the invitation, and all descending to the cabin, sat down to dinner.

"Now then, gentlemen," said the Baron, as he adjusted his napkin in the most scientifick manner, and made the other requisite preparations for taking his allowance aboard, "nothing so much injures digestion as violent talking, therefore we'll eat our dinner in peace, and discuss this matter over our wine. Captain Stanley, allow me to give you a bit of his majesty's junk;" and during dinner he talked over the news, the best method of ascertaining longitude by D. R., an improvement he had made in the log, and narrated some well-twisted yarns.

With all this display Benson was much pleased, as he knew it would give time for his men to get out the Indiaman's cargo, and accordingly swallowed the Baron's stories, and laughed so heartily at his jokes, that he made quite a lodgment in the Dane's good opinion;—while Stanley, too angry to eat or talk, answered only when addressed, and then only in monosyllables.

"Well, gentlemen," said the Baron, as he finished relating an out-and-outer, and passed the bottle for the twelfth time, "we will now arrange this matter. When I hove-to the schooner, she was four miles from the sloop-of-war; it is, of course, fair that she should now have the same advantage. You, Captain Stanley, will therefore remain hove-to, until Captain Benson has made this headway; and then you can continue your chase. But, Captain Benson, I cannot allow either you or your prize to keep under my lee, for I should by so doing violate my neutrality; and although I shall keep within sight of you, it will be only to see the result of the game, as I shall not interfere in any way."

"If you please, my lord," said Benson, a comical idea entering his cranium at this moment, "thirty minutes' truce from the time I reach my vessel, will

suit me as well as four miles headway. In that time I shall return the Indiaman's crew and passengers on board of her, and we will then escape by running, or fighting, as it may happen."

"That is very fair, sir," replied the Dane; "and with that, Captain Stanley, I think you will be satisfied. At the end of the thirty minutes' truce I shall fill away, and leave you to fight your own battles, and at that we will consider it settled." So saying, he returned upon deck, followed by the rivals.

Captain Stanley, though little pleased with this decision, felt that it was useless to remonstrate, and sullenly mounted the gangway to descend into his boat, when, on glancing at the privateer, a sight greeted his eyes, which made him pause and give vent to several vigorous anathemas.

Now it so chanced that the privateer's men having nearly cleared the Indiaman of the most valuable part of her cargo, were at this moment tossing the cases of silk and chests of tea in a perfect shower over her gunwale upon the deck of the schooner; while the multitude of cases, boxes, &c., which lay about the American's deck, showed plainly that Jonathan had well improved his time.

This was too much for Captain Stanley's nerves, and jumping back upon deck, he angrily demanded of the Danish Baron, that Benson should be compelled to restore the cargo of the Indiaman.

"That, sir," replied the Baron, suppressing a laugh with difficulty, "is none of my business, and no part of Captain Benson's agreement. He agreed to leave the ship to take her chance, but said nothing about the cargo;—you must helm that as you can. And farthermore, sir," he added sternly, "if you offer to brace up until I do, which I shall do as soon as the thirty minutes have expired, I shall consider it a personal insult, and shall open my fire upon you immediately. So, adieu, gentlemen; it is seldom that I meet such pleasant society at sea, and I shall always remember you."

Politely taking leave of the Baron, Benson returned to his boat, when the bloody faces of both boat's crews showed that they had been enjoying a little quiet fight among themselves.

"How's this, my lads," said he, in a loud tone that Stanley might hear him, as he shoved off to let his boat draw up; "you did wrong to flog those gentlemen-ropehaulers; you should have doused your peak to them. I say, Captain Stanley," he added, as the latter came into his boat, "don't you think it would be a good plan for us to club together and take this frigate? I believe we could lick her, and then we would have our own fight good-naturedly, eh?"

The Englishman, however, was in no humour for jesting, and vouchsafed no reply; so each returned to his vessel.

"We have taken out all the schooner will stow of the Indiaman's cargo, sir," reported Townsend, as Benson came on board.

"Very good, sir," replied Benson; "muster all hands aft here."

Few words sufficed to explain his plan, and it was as rapidly put into execution. All the English prisoners, including Captain St. John, were put into the cabin of the Indiaman, and the companion-way, sky-lights, deadlights, and hatches, locked fast and battened down. Next, all her sheets, tacks, and halyards were stoppered and unrove; and her studding-sails were then set on both sides, she being still hove-to, and leaving the tacks standing, the sheets and halyards were also stoppered and unrove; and every thing being prepared, the remainder of the thirty minutes' truce was employed in starting overboard the balance of her cargo. When the Danish frigate braced up at the close of the truce, the Indiaman was cast off from the privateer, her yards squared, and her helm lashed fast amidships, and instantly gathering way, she was off like a shot before the wind, heading directly for the sloop-of-war.

The few Americans who yet remained on board of the Indiaman, then jumped into their boat, were hauled back by the line, the boat was run up at the davits, and the schooner filling away, stood north-northwest;—thus keeping her prize between herself and the sloop.

The Indiaman, meanwhile, bore rapidly down for the man-of-war, and the latter was so nearly in her course, that Stanley found great difficulty in getting out of the way in time, for had the Indiaman yawed two points, she would have run him slap aboard; which concussion, as it would probably have sent both to the bottom, was *not* exactly a "consummation devoutly to be wished." By this time, also, Stanley perceived that there were no persons on the Indiaman's deck; and the nature of Benson's trick dawning upon him, he became aware that it was not so easy to take possession of the Indiaman, she having, of course, a singular degree of independence in her motions; and before his operations were arranged, she had whizzed past him, and was off to the southwest at twelve knots an hour.

This was decidedly provoking, and Stanley was obliged at once to give up all hopes of capturing the privateer, which had now gained good start to windward, and make all sail in chase of the Indiaman, for to leave her in her present condition, would have been outright murder to all on board. Accordingly, with many heartfelt execrations at the Yankee's trick, he bore away in chase, while, to add to his vexation, the privateer perceiving his change of course, instantly put up her helm also, and despatching a forty-two pound shot to inform of that fact, gave him chase, taking care to avoid the range of his stern-chasers, so that it looked altogether amazingly, as he was running away from the schooner.

It was truly a laughable sight, to see the sloop-of-war setting studding-sails alow and aloft, and cracking on every thing in chase of the Indiaman; for to fire upon her could do no manner of good, as it would very likely kill some of her crew; so that it was altogether quite a romantick chase, very much like running after eggs down hill; to put your foot upon them would stop them doubtless; but it would probably break them in the bargain.

Accordingly, the Danes and the Yankees cachinnated greatly at Stanley's pickle; and he, guessing their thoughts, from his consciousness of the predicament he was in, mingled all manner of prayers for their future condition with the orders he gave, the which petitions, if granted, will materially affect the condition of the scamps aforesaid, on the leeward side of the river Styx.

The Indiaman, meanwhile, seemed spitefully to sail like the devil, so that it was more than an hour before the sloop was abreast of her, the privateer

still giving chase to both. Having overtaken her, it was next necessary to board her, and this too was by no means so easy. Two large ships under full headway would rasp one another finely if laid alongside, while to send a boat was useless, as it would drop astern very shortly; so here was another peck of troubles.

Captain Stanley at length perceiving that nothing else would do, ran within a hundred feet of the Indiaman, and loading his starboard battery with chain-shot, let it drive among her rigging. Here, however, he got more than he bargained for. Intending to shoot away the braces, the shrouds and stays followed; and the wheel being also demolished, the Indiaman yawed suddenly, and in an instant was lying along his starboard-side afoul. The consequent rasp was highly emphatick, and, in consequence, down thundering came the masts and yards of the Indiaman, the greater part upon the decks of the sloop-of-war; so that Stanley was, on the whole, quite decently peppered; while, to crown all, the farewell forty-two-pound shot from the privateer, as she hauled upon the wind for the coast, came crashing through his tafferel.

American Monthly Magazine.

USEFUL ARTS.

DRAWING.

Drawing, considered as a distinct branch of art, is the elder sister of painting, and in the course of time became connected with geometry. It is the art of representing by means of lines upon a flat surface, the forms of objects, and their positions and relations. The attempt to imitate, by lines, the forms which we see in nature, is the commencement of all drawing. According to a Greek tradition, drawing and sculpture took their rise together, when the daughter of Dibutades drew the outline of the shadow of her lover upon the wall, which her father cut out and modelled in clay. We can distinguish, in the earliest attempts at drawing, different epochs, which are found in almost all nations:—1. Objects were delineated only with rude, shapeless lines. 2. In order to make such drawings more striking to the eye, the sketch was filled up with black, or some other colour, and then the eyes, eyebrows, nose, mouth, and hair, were marked with white upon the dark surface. To all these figures the name was attached, and in general, explanatory words, such as we find upon all the old vases.

This custom was continued by the Greeks, even in the most flourishing period of the art of drawing among them; for the figures of the great picture of Polygnotus, at Delphi, were designated by such inscriptions. In the 3d epoch, an attempt was made to give animation to pictures, by representing the different colours of the drapery; but, as yet there was no attempt at perspective. In this manner Helen and Andromache embroidered tapestry, as described in the poems of Homer. In the 4th period, the want of prominence in the figures was remarked. Ardices and Telephanes (probably fictitious names) began, by drawing lines in the back-ground, to produce the appearance of shadow, and to give prominence to their figures. In later times, Polidoro di Caravaggio delineated in this way many frescoes in Rome, where he used only a single colour, but produced the shading by lines drawn thus, in the manner called *hatching*. These works are called *al sgrafito* or *peindures hachées*. This manner of drawing, however, was very hard. Philocles and Cleanthes invented the *monochrome*, or picture with one colour. In the *monochrome*, the colour used was mixed with white, so that this resembled the style now called *en camayeu*. This was the first step from drawing to proper painting, which is distinguished by having the back-ground of the picture filled.

The Greeks were very careful and particular in their instruction in drawing. Pamphilus, the teacher of Apelles, wished his pupils to remain with him ten years. There were three stages of instruction: in the first, firmness of hand and of stroke was obtained, and the learners drew with styles upon tablets covered with wax; in the second, fineness and delicacy of stroke was studied, while the learner laboured with the style upon smooth tablets, made of box-wood, and sometimes upon membranes, or upon the skins of wild beasts, properly prepared, and covered with wax. In the third stage, freedom and ease were to be acquired; here the pencil was used instead of the style, and with it black or red sketches were drawn upon white tablets, or white sketches upon black tablets. The tablets used were covered either with chalk or gypsum.

Line-drawing was carried to the highest perfection, and was the glory of the greatest masters. The rivalship of Apelles and Protogenes in such lines, drawn with distinguished delicacy and skill, and displaying a master's hand, is well known. This fineness and clearness of outline is also the chief merit of the celebrated vase-painters. Something hard and dry was found in the pictures executed on such outlines, and it may well be maintained that this manner of drawing, through the influence of the Byzantine school on the west of Europe, gave rise to the dry and meager style of the old Italian as well as of the old Dutch school.

When we consider the art of drawing as it exists at the present time, we perceive that there are three distinct kinds of drawing—with the pen, with crayons, and with Indian-ink, or similar substances. Artists sometimes employ coloured, and sometimes white paper; in the former case, the lights are produced by white crayons; but in the latter case, they are produced by leaving the paper uncovered. The drawings with the pen have always something hard and disagreeable, yet they give steadiness and ease to the hand, and are peculiarly serviceable to landscape painters. There are two different ways of drawing with the pen; either the drawing is darkened on the shaded side with lines, or the outline only is given by the pen, and the shades are delicately touched in with Indian-ink.

This mode is peculiarly adapted to architectural drawings. The crayon-drawings are the most common, and the most suitable for beginners, because any faults can be effaced or covered over. Artists make use of black, as well as of red crayons; and, when the ground is coloured, they produce the light by means of white crayons. If the crayon is scraped, and the powder rubbed in with little rolls

of paper or leather, the drawing becomes exceedingly delicate and agreeable, though its outline is deficient in strict precision. This manner, which from the French name of the rolls used, is also called *à l'estompe*, is peculiarly suitable for large masses, and shades, and *chiaro-scuro*, and for producing a harmonious effect of light. There are also crayon-drawings, where the principal colours of the objects painted, are delicately sketched with coloured pencils; these are peculiarly suitable for portraits. To this kind of drawings belong likewise those made with lead and silver pencils, upon paper and parchment, which are suitable for the delicate delineation of small objects. In some cases, drawings of this description are softly touched with dry colours. There is another style of drawing, in which Indian-ink, or sepia and bistre intermingled with carmine and indigo, are used. The lights are produced by leaving the white surface uncovered. This mode produces the finest effect, and is very much used in the representation of all kinds of subjects.

There are various classes of drawings, as sketches, studies, academy-figures, cartoons, &c. *Sketches* are the first ideas of the subject of a picture, thrown off hastily, to serve as the basis of a future drawing. They are made with charcoal, with the pen, or the pencil. To the rapidity of their execution may be ascribed the animation perceptible in the sketches of great masters, of which there are rich collections. *Studies* are copies of single parts of subjects, made either after life or from models; as heads, hands, feet, sometimes also whole figures. Drawings from skeletons and anatomical preparations, those of drapery, animals, plants, flowers, scenery, &c., are also called by this name. *Academy-figures* are drawn from living models, who stand in academies of fine arts and other establishments, intended for the education of artists. The models, male and female, of all ages, are placed in different situations and attitudes, on an elevated spot, by lamplight. The pupils stand round and draw, under the direction of professors. Experienced painters and sculptors likewise continue to draw from living models, either in private or in company. The most perfect figures, of course, are selected. In order to study drapery, a figure of wood, with moveable limbs, is placed so that the student can draw from it.

Cartoons are drawings on gray paper, of the same size as the paintings which are to be copied from them. These are, for instance, large oil-paintings, fresco-pictures, &c. Artists make use, also, of other means, in order to transfer the outlines of a painting upon another canvass, if they wish to copy very faithfully. If the copy is to be on a larger or a smaller scale than the original, it is customary to place on each canvass frames of wood, the space enclosed by which is divided, by means of threads, into quadrangular compartments. The compartments on the original are larger or smaller than the others, as the case may be. The artist then draws in each square of his canvass, what he finds in the corresponding square in the original. If the copy is intended to be precisely of the same size with the original, the outlines are often traced through a black gauze, from which they are afterward transferred by pressure to the canvass of the copy. This, it is true, does not give any distinct forms, but it indicates precisely the spot where every object is to be placed which saves much time.

If the intention is to copy the outlines of the original exactly, it is necessary to make a *calque*, that is, a paper saturated with varnish, and quite transparent, which is put on the painting; the outlines are drawn; then the paper is blackened with crayon on one side, put on the new canvass, and the outlines are followed by some pointed instrument, and thus transferred to the canvass. It is evident that it is never allowable to take a copy in this way from very valuable pictures. The sketches of great masters are always valued very highly, because they show most distinctly the fire and boldness of their first conceptions. But for this very reason, because their excellence depends on the freedom with which they are thrown off, it is far more difficult to make copies from them than from finished paintings. The great schools in painting, differ quite as much in respect to drawing, as in respect to colouring. The style of drawing of the old Italian school is as hard, dry, and meager, as that of the old German school. The defects of the former are more often redeemed by beautiful forms and just proportions, whilst in the latter a meaning is frequently expressed, which in clines more to poetry than to art.

At a later period, the Roman school became, in Italy, through the influence of Raphael's exquisite sense of the beautiful and expressive in form, and through the study of the antique, the true model of beautiful drawing. The Florentine school strove to excel the Roman in this respect, and lost, by exaggeration, the superiority which it might, perhaps, otherwise have gained from its anatomical correctness, and deep study of the art. The masters of the Florentine school often foreshorten too boldly. In the Lombard school, delicate drawing appears through enchanting colouring; but perhaps it is more true to nature and feeling than to scientifick rules. The Venitian school, in reference to the other schools of Italy, has many points of resemblance, good and bad, with the Dutch school, in reference to Germany.

In the Venitian school, the drawing is often lost in the glow and power of the colouring; and it is very often not the nobleness of the figures and ideas in the drawing, but the richness, boldness, and glowing nature of the painting, which delights us. The French school was, in Poussin's time, very correct in drawing; and he was justly called the *French Raphael*. At a later period, the style of this school became *maniéré*. David introduced again a purer taste in drawing, and a deep study of the antique. This study of the antique, together with the precision of their drawing, are the distinguished characteristicks of the modern French school.

In Germany, there cannot be said to be any general style of drawing peculiar to her artists. The many distinguished artists of that country have formed themselves individually, by the study of nature and works of art; and whilst some of the most celebrated painters are distinguished for correct drawing, others are reproached for want of it, in some of their finest pictures. On the whole, their drawing is not so correct as that of the French. Many young German artists unfortunately consider the *naïveté* of the ancient masters of their country as beauty, and strive to imitate it.

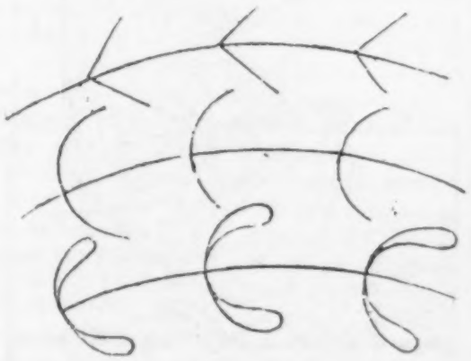
Having thus furnished our readers with a brief view of the mechanical processes in drawing, and an outline of the peculiar features of the principal schools, it will be proper to examine the progress of design, commencing with simple lines.

Every thing deserving the title of beautiful, and every grand object, assume an outline of definite character; the former in undulating lines of elliptick curves, and grandeur in angular dispositions of figure. Lines of motion, on the contrary, assume a curved direction. The first means of combining straight lines so as to please the eye, without creating any geometrical figure, is the radiating principle. Our eye not only can tolerate that union of lines, but receives the impression as pleasing in character; while all lines parallel to each other, being right lines, and viewed as a flight of steps, or pile of rods producing an opposite effect on the observer, are disagreeable.

Upon the former principle it is, that the rays of the sun, and rays of light generally, are so attractive and beautiful. It is from this circumstance that right lines, drawn in an inclined position to the plane of a picture, derive an interest from the angles engendered through the imagination. To follow up the principle by regular steps, and to open a clear view of the laws of beauty in lines, we may trace an inclined right line, with a regular set of right angles upon it, like the stems of leaves on each side. This exhibits no sort of beauty, nor any other advantage than mere combinations of formal angles. We may then draw an inclined line, as before, with similar angular projecting stems, to which should be added elliptick curves on the upper side of each branch, and the form of a leaf is produced. The next step is an inclined line, having oval curves upon it. Both these possess principles approaching to beauty, by progressive advances in combination and original structure. An inclined line, with the oval curves upon it; to which are added elliptick curves on the upper side of each stem. This addition is a new advance towards beauty. A more perfect principle of beauty, having an elliptick stem with oval branches rising from it, will readily be conceived by the student.

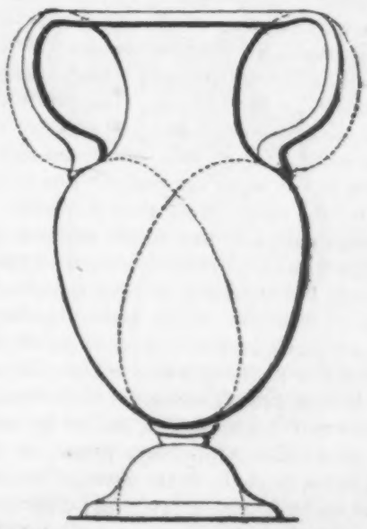
If to this, the principle of gradation be given, by a scale of increase from the top to the bottom of the projecting stems; and if there be superadded the external contour of a lengthened egg, like the form of a sage-leaf, we shall, step by step, advance into the region of beautiful character in exteriour design.

In the subjoined engraving we give three forms; in the latter is seen the elliptick stem with the oval branches rising from it, to which small serpentine additions are made, expressing a leaf.

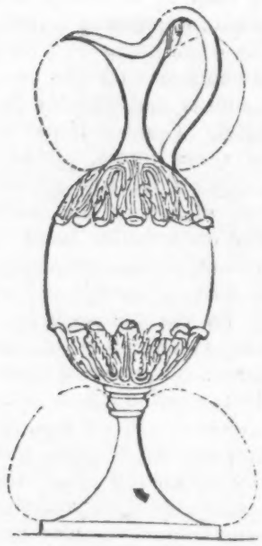


Of all the three diagrams to which we have adverted, the last abounds with the greatest portion of beautiful lines, and is indisputably the most agreeable and beautiful. Combinations are like numericals: many of these forms, placed together with judgment and discretion, will attract us from the larger proportion of beauty that meets the eye at once, like a head of beautiful hair: one hair, however gracefully bent, cannot impress us like an entire lock of the hair; nor will this curl charm us as the whole will on the human head. We owe to construction and combination all our pleasurable feelings of beauty: no person is allured by a single species of objects: but a thousand, or a million, arouse our anxious notice. Thus, the last diagram of the elliptick stem, and foliage upon it, exhibits, by the continuity of curved lines, the greatest approach to beauty, of any of its predecessors. These preliminary designs open the way for richer combinations. Curved lines of various quantities of convex and concave, drawn at random, without expressing or forming any sort of figure, please our ey more than any set of right lines similarly distributed. Quantity and variety are absolutely necessary to the production of perfect beauty; equalities being unfriendly to that symmetry which accords with nature. The combinations of the oval may be varied to an extraordinary extent. The vases represented in the engravings, though very dissimilar in appearance, are both the result of these combinations.

The first, resembling a Greek vase with handles, is composed of seven parts. The body has four parts; the foot, or pedestal, one; the neck, two. The handles are regulated in the position and projection by lines drawn from the bottom of the vase, through the ovals which compose the outline of the two sides, and passing through the transverse diam-



eter. The skeleton of angles that govern the shape of this vase, is a very pretty figure of itself. The form does not proceed from any caprice or irregularity, but is consistent with rational organization, and symmetrical proportions. The other vase, represented overleaf, exhibits an Hebe cup, with a handle which presents a totally different appearance in form to the previous one.



It is proportioned by similar principles: the large disk makes the body, inclining right and left upon the end of the oval. The neck and leg are both made from the smaller oval disk; the dotted lines to the ovals of the leg. The handle and concave lip of the cup, are made by an application of the same disk. The altitude contains four parts, the body two parts, the leg one part, and the neck one other part; the handle rises one eighth above. Every portion of this figure is created by the two disks previously named. The foliage rises from below and descends from above, one fourth of the whole height of the body to the commencement of the concavity of the neck, where the beading runs round. It has been remarked, that by adhering to regular proportional quantities of one and two, three and five, two and five, seven and two, &c., and using elliptick disks or curves, very great beauties are derived.

The motion of ships at sea is described in gentle elliptick curves; the wings and plumage of birds assume the oval and elliptick curves; all the fibres of their feathers have that form; some flattened, others more rounded; the pine-apple and numberless fruits have all an oval character of outline. Many take the character of eggs, pointed at one end, and large and blunt at the other extremity. The leaves of trees have the oval shape more than any other; the bend of the branches, and the whole external form of many trees, are oval. There is no form of created things which may not be found to correspond in all its dependant shapes, to ovals and ellipses of various disks: even objects which at first sight seem to contradict the possibility of meeting this system.

The Greek artists so confined themselves to certain rules and principles of unerring consequences, in the production of beauty, grace, or grandeur in their figures, that all their compositions depended upon the same species of rule and order. It is much to be regretted that fashion is in all countries the destroyer of taste; that it unfits the mind for fixed principles; that where it dominates, there taste will be always fluttering and never settle, nor have a sure dominion. The Greeks do not appear to have suffered themselves to be diverted from a pure course of design in their studies, and, as such, arrived at a very high degree of perfection in most scientifick pursuits, by following sure principles as their guides, and by never abandoning a path traced by nature, and matured by the most sublime philosophy.

Pursuing our path in the subject of design, we at once come to the human form. The whole of our readers have, no doubt seen in the elementary treatises on drawing, the series of curves which form the human structure; to illustrate this, however, in the readiest way, we may turn to that great master of design, Raphael.

In this beautiful group, representing the Holy Family, the principle of the circle advancing to an oval is beautifully portrayed. In childhood, the circle predominates, but at a later period of life the face is elongated, and now though much of the prettiness begins to pass away, it is succeeded by the markings of a higher degree of intellect. The deeper and more powerful workings of the mind succeed to the infantile simplicity which marked the first dawning of reason.

In the beautiful curves which composed the vases first noticed, the forms must of necessity be the same under all circumstances; hence it will be obvious that the difficulty increases very considerably when we come to the varying characters, ages, and passions of mankind.

There is more of skilful design essential to a right arrangement of the folds in the drapery of a figure

than the young artist is apt to imagine. The ancients excelled in *picturesque*, but not in *natural* drapery.—An example of the latter will be found in the foregoing figure, designed by Flaxman.

We have heard of sculptors who design their drapery by laying layers of wet and flexible clay over the figure they are about to execute, but by such a process as that, little of real excellence could be produced. The ancient masters appear to have arranged their draperies as the upholsterer nails his curtain, in faultless form, and perfect order—nothing was left to chance. Now, to give a piece of drapery the slightest claim to a natural character, its whole arrangement must be that of chance ; and no person can examine the simply natural masses, shown in the previous figure, without at once observing the vast inferiority of the ancients under this head.

We must not, however, forget that this simplicity may easily degenerate into vulgarity, and poverty of conception. We may take as an example, the exquisite piece of drapery introduced by Chantrey, in his bust of the late Sir W. Scott. Now this has been copied by other inferiour artists, and they have attempted, by the aid of a small handkerchief, or towel, to give the massive folds and beautiful contour of the original, and the consequence has been failure of the worst kind. Great depth of finish is not essential to good drapery—but just conception, and an acquaintance with the mechanical character of different fabricks.

In proof of what we have now been advancing, we may take one of the most beautiful groups probably in existence, and to which our artist has done ample justice. Cupid and Psyche possess in a peculiar degree all the graces of the antique school. It has in this respect also its peculiar faults.

The waist of the male figure is encircled by a double row of drapery, forming unbroken lines of small plaits—now this is neither natural, nor yet picturesque. The drapery of Psyche much resembles that of the Caryatides, and is as quaint as it is unnecessarily indelicate. Flaxman and Canova, among modern sculptors, and Retsch and

Frank Howard, in the pictorial art, stand highest in the power of imbodying what is beautiful in the ancient school with the more natural character of real life. The dramatick illustrations of the latter form a distinct era in art. Brit. Cyc.

CLOTHING OF CHILDREN.

THE general rule which reason suggests in regard to the clothing of children, is that "a child have no more clothes than are necessary to keep it warm, and that they be quite easy for its body." In conformity to this rule, the dress of children should be simple, clean, light and cheap—free, wide and open, so as neither to impede the vital functions, nor the free and easy motions of the body, nor prevent the access of fresh air, and be easily put on or taken off. Pins should be used as little as possible, and the clothes fastened with strings, which would prevent the occasional scratching of their tender skins, and those alarming cries which so frequently proceed from this cause. Such a light and simple dress would induce children to live with less restraint in

[Simple dress of a little girl.]

the society of each other ; and check that silly pride which leads them to ape the fashions of their superiours, and to value themselves on account of the finery of their clothes. During the first months, the head and breast may be slightly covered ; but as soon as the hair is sufficiently long to afford protection, there appears little necessity for either hats or caps, unless in seasons of rain or cold. By keeping the breast and neck uncovered, they acquire more firmness, are rendered hardier, and less susceptible of being affected with cold. Besides, a child has really a more interesting aspect, when arrayed in the beautiful simplicity of nature, than when adorned with all the trappings which art can devise. The following anecdote, related by Herodotus, illustrates the advantage connected with a cool regimen of the head : "After the battle fought between the Persians, under *Cambyses*, and the Egyptians, the slain of both nations were separated ; and upon examining the heads of the Persians, their skulls were found to

be so thin and tender, that a small stone would immediately perforate them; while, on the other hand, the heads of the Egyptians were so firm, that they could scarcely be fractured by the largest stones." The cause of this remarkable difference was attributed to the custom of the Egyptians shaving their heads from earliest infancy, and going uncovered in all states of the weather; while the Persians always kept their heads warm by wearing heavy turbans.

Attention ought likewise to be paid to the proper covering of the *feet*. It is scarcely necessary for children to use shoes before they are a year old; or if they do, the soles should be thin and soft. The form of the human foot is such, that at the toes it is broad, at the heel narrow, and the inside of the foot is longer than the outside—a form which is evidently intended by nature, to enable us to stand and walk with firmness and ease. It is therefore a dictate of Nature, that shoes should be made in the same form [illegible]eet, and be sufficiently roomy for the toes to [illegible] with ease; and in order to this, they must be [illegible]med upon two separate lasts, corresponding to the right and the left foot. How shoes came at first to be made tapering to a point at the toes, almost like a bodkin—how high heels became the darling fashion of the ladies—and how a small foot came to be reckoned *genteel*—I pretend not to determine; but certainly nothing can be more absurd and preposterous. Such opinions and practices, along with many others which abound, particularly in the fashionable world, have a direct tendency to counteract the benevolent intentions of Nature, and are nothing short of an attempt to arraign the wisdom of the Creator, in his arranging and proportionating the different parts of the human frame—as if puny man, by his foolish whims, were capable of improving the workmanship of Infinite Intelligence. The following figures (taken from Dr. Faust) plainly show the absurdity of the shapes which have been given to shoes. Fig. 1 shows the original shape of the sole of the left foot. Fig. 3 shows how the sole of the left shoe ought to be formed; and Fig. 2 shows clearly that the shoes usually worn, and made on one last, cannot correspond to the natural shape of the foot. If they taper towards a point, the large toe, and some of the small ones, must be crushed and pressed against each other, causing pain to the wearer, and producing corns. The simplest and most accurate mode of taking the true measure and form of shoes, is to place each foot upon a sheet of paper, and then draw its shape with a pencil, to which two separate lasts should nearly correspond, after having ascertained the curve of the upper part of the foot.

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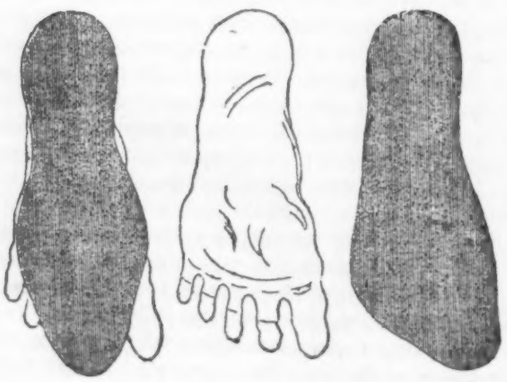


With regard to the clothing of children, in general, it is the opinion of Dr. Faust, that from the beginning of the third to the end of the seventh or eighth year, "their heads and necks must be free and bare, the body clothed with a wide shirt, and frock with short sleeves, the collar of the shirt to fall back over that of the frock, with the addition of a woollen frock, to be worn between the shirt and the linen frock, *during winter*, and that the feet be covered only with a pair of socks, to be worn in the shoes." Such a cheap and simple dress, if generally adopted, would undoubtedly be beneficial to mankind in general, and tend to promote the strength, beauty, and graceful attitudes of children, and at the same time check the foolish propensity of parents to indulge their children in flimsy ornaments and finery, beyond what their means can afford. At present, children are frequently muffled up with their caps, hats, bonnets, cravats, pelisses, frills, muffles, gloves, ribands, and other paraphernalia, as if they were to be reared like plants in hot-beds; so that the shape and beautiful proportions which nature has given them can scarcely be distinguished. I shall only add, that the dress of children ought to be kept thoroughly *clean*; as dirty clothes not only gall and fret their tender skins, but tend to produce disagreeable smells, vermin, and cutaneous diseases; and no mother or nurse, however poor, can have any valid excuse for allowing her children to wallow in dirtiness. Dick.

THE RESTLESS ONE.

BY LIEUTENANT G. W. PATTEN, U. S. ARMY.

SHE knew his brow was clouded,
And she lean'd it on her hand,
And gently woo'd him to her side,
With breath like breezes bland;
But he gazed upon a banner,
As it floated on in pride,
And while he marked its gleaming stars,
They won him from his bride.

They lured him from the presence
Of the cherish'd and the true,
No more to gaze upon her face,
Her gentle step pursue;
And yet, through Life's long pathway,
When the aisles of Hope grew dim,
Bright as a deed of glory,
Was the smile she had for him.

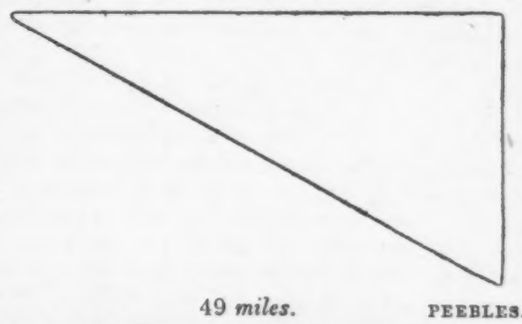
She knew they must be parted
Ere they had scarcely met,
And faster tear-drops dimm'd her eyes
That none but HERS were wet:
And she wore a spell of sorrow,
Which she learn'd unto her lute;
But the trumpet had a deeper charm,
And the lover's ear was mute.

He left the song of Beauty
For the musick of the plain—
The lowly breathing of the lyre
For pæans o'er the slain:
And yet that sweet lyre chorded,
That voice like a mockbird's tone
For him were garnered all its notes,
For him it sung alone.

Time was, Love's smiles might conquer
What the sword might ne'er disarm—
When strong was woman's lowly prayer
As the might of the mail'd arm:
But the magick spell is over,
And the siren voice is dumb,
While Love forgets his gentle lute,
And he strikes the doubling drum.

MATHEMATICKS.

When the dimensions of the mason-work of a house are required, the different parts of the building, which require separate calculations, as the side-walls, the end-walls, the gables, the chimney-stalks, &c., should be separately delineated; and if such delineations are not found in the books where the questions are stated, the pupil, before proceeding to his calculations, should be desired to sketch a plan of the several dimensions which require his attention, in order that he may have a clear conception of the operations before him. Such questions as the following should be illustrated by diagrams. "Glasgow is forty-four miles west from Edinburgh; Peebles is exactly south from Edinburgh, and forty-nine miles in a straight line from Glasgow.—What is the distance between Edinburgh and Peebles?" This question is taken from "Hamilton's Arithmetick," and is inserted as one of the exercises connected with the extraction of the square root; but no figure or explanation is given, excepting the following foot-note: "The square of the hypotenuse of a right-angled triangle, is equal to the sum of the squares of the other two sides." It should be represented as under:



In a similar manner should many other examples connected with the extraction of roots be illustrated. The following question can scarcely be understood or performed, without an illustrative figure, and yet there is no figure given, nor hint suggested on the subject, in the book from which it is taken. "A ladder, forty feet long, may be so placed as to reach

a window thirty-three feet from the ground on one side of the streets; and by only turning it over, without moving the foot out of its place, it will do the same by a window twenty-one feet high on the other side. Required the breadth of the street?" The foregoing is the representation that should be given, which, with a knowledge of the geometrical proposition mentioned above, will enable an arithmetical tyro to perform the operation, and to perceive the reason of it.

By this figure, the pupil will see that his calculations must have a respect to two right-angled triangles, of which he has two sides of each given to find the other sides, the sum of which will be the breadth of the street.

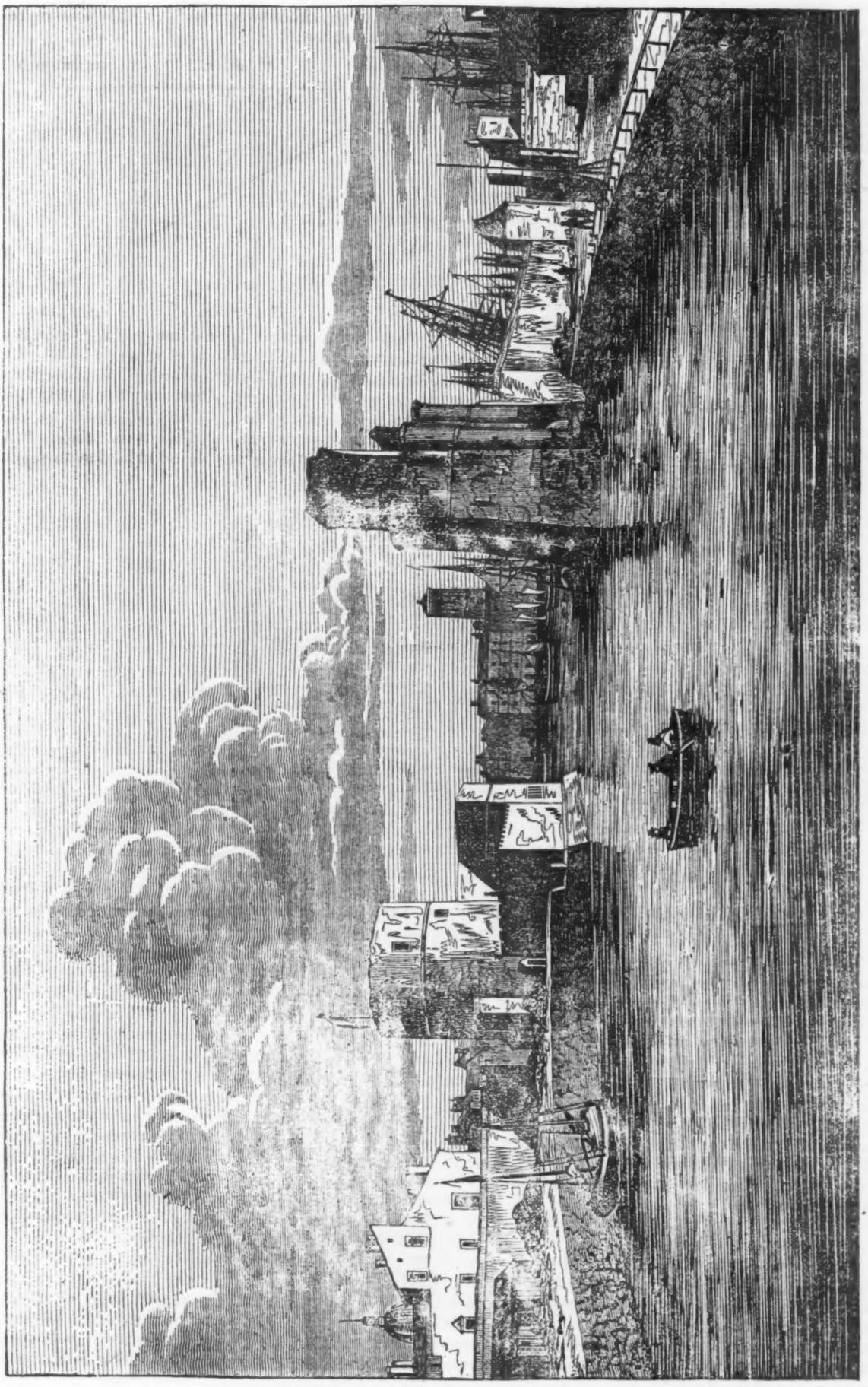
Dick.

DRUMS.

The drum is an instrument which produces sound by means of a tightly-extended skin; they are common in almost every part of the world. The tambarine is found among most nations; the ancients called it *tympanum*. All these instruments are used both for profane and sacred purposes. But the peculiar use of the drum for military purposes seems to have been introduced among the Europeans in the time of the Crusades.

The kettle-drum, the base-drum, tambarine, and other kinds, are all common in the East. The drum, as a military instrument, is used both to beat the march and to give signals. No man, who had not experienced it, can imagine the exciting power of the drum. The fatigued and exhausted soldier is at once animated by its sound; and in battle it preserves order, and inspires courage in a body attacking *en colonne*. The French drummers perform admirably, and, under Napoleon, a great number were attached to each battalion. A drum which has acquired historical celebrity, is that which, by the order of Zisca, was covered with his own skin, that he might still aid in battle, where he had so often commanded, even after he had become blind.

In cases of doubtful morality it is usual to say—"Is there any harm in doing this?" The best method of answering this question by the genuine dictates of the conscience, is to ask another: viz., "Is there any harm in letting it alone?" or, "Is it good and proper to be done?"



View of La Rochelle.

AMERICAN COMMERCE.

ROCHELLE.

La Rochelle is a commercial city of France, in the department of the Lower Charente. It stands on the shores of the Atlantick ocean, one hundred miles northwest of Bourdeaux. It is well built and strongly fortified, (by Vanban,) and contains many handsome squares and fountains. The harbour is safe and commodious, but is accessible for large vessels only at high water; and the Place d'Armes, or du Château, is one of the finest in France. Glass, stoneware, and refined sugar, are the principal articles manufactured, and it has a considerable commerce with the United States; sending to our shores in the course of the year, many cargoes of brandy, wine, &c. Rochelle is chiefly remarkable as the stronghold of the French protestants in the times of the house of Valois, and the first Bourbons. In 1627, it was besieged by Richelieu, and was reduced by famine, after a heroick defence, in which fifteen thousand of the besieged perished. A great number of the inhabitants fled to North America. La Rochelle has a population of rather more than eighteen thousand persons. Longitude 1° 9′ west, latitude 46° 9′ north.

[Temple of Concord.]

ARCHITECTURAL MONUMENTS.

The above cut represents the temple of Concord, one of the most perfect ruins now existing on the site of the ancient Agrigentum.

Agrigentum was much renowned among the ancients. Different stories are told of its foundation; among which is the fabulous tale, that Dædalus, who fled to Sicily from the resentment of Minos, erected it. Its situation was peculiarly strong and imposing, standing as it did on a bare and precipitous rock, 1100 feet above the level of the sea. To this military advantage, the city added those of a commercial nature, being near to the sea, which afforded the means of an easy intercourse with the ports of Africa and the south of Europe. The soil of Agrigentum was very fertile. By means of these advantages, the wealth of Agrigentum became very great. It was therefore considered the second city in Sicily, and Polybius says that it surpassed in grandeur of appearance, on account of its many temples and splendid publick buildings, most of its contemporaries. Among the most magnificent of these buildings, were the temples of Minerva, of Jupiter Atabyris, of Hercules, and of Jupiter Olympius; the latter, which vied in size and grandeur of design, with the finest buildings of Greece, is said by Diodorus to have been three hundred and forty feet long, sixty broad, and one hundred and twenty high, the foundation not being included, which was itself remarkable for the immense arches upon which it stood. The temple was ornamented with admirable sculpture. But a war prevented the completion of it, when the roof only remained unfinished. Near the city was an artificial lake, cut out of the solid rock, about a mile in circuit, and thirty feet deep; from which fish were obtained in abundance for the publick feasts. Swans and other water-fowl frequented it. Afterward, the mud having been suffered to accumulate in this basin, it was turned into a remarkably fruitful vineyard. Both the temple of Jupiter Olympius and the lake were the work of a number of Carthaginian captives. The people of Agrigentum were noted for their luxurious and extravagant habits. Their horses were also famous. After the expulsion of the Carthaginians from Sicily, it fell, with little resistance, under the power of the Romans. Diodorus states the population, in its best days, to have been not less than 120,000 persons

MANAGEMENT OF CANARY-BIRDS.

THE plumage, pretty form, and docility; the charming familiarity which disposes it to nestle without fear or reserve beside us; and, above all, its melodious song, have long introduced the canary to all classes of society.

Buffon, speaking of this beautiful and universal favourite, says: "If the nightingale is the chantress of the woods, the canary is the musician of the chamber; the first owes all to nature, the second, something to art. With less strength of organ, less compass of voice, and less variety of note, the canary has a better ear, greater facility of imitation, and a more retentive memory; and, as the difference of genius, especially among the lower animals, depends in a great measure on the perfection of their senses, the canary, whose organ of hearing is more susceptible of receiving and retaining foreign impressions, becomes more social, tame, and familiar; is capable of gratitude and even of attachment; its caresses are endearing, its little humours, innocent, and its anger neither hurts nor offends. Its education is easy; we rear it with pleasure, because we are able to instruct it. It leaves the melody of its own natural tone, to listen to the mèlody of our voices and instruments. It applauds, it accompanies us, and repays the pleasure it receives with interest, while the nightingale, more proud of its talent, seems desirous of preserving it in all its purity, at least it appears to attach very little to ours, and it is with great difficulty it can be taught any of our airs. The canary can speak and whistle; the nightingale despises our words, as well as our airs, and never fails to return to its own wild wood-notes. Its pipe is a masterpiece of nature, which human art can never alter nor improve; while that of the canary is a model of more pliant materials, which we can mould at pleasure; and therefore it contributes in a much greater degree to the comforts of society. It sings at all seasons, cheers us in the dullest weather, and adds to our happiness, by amusing the young, and delighting the recluse, charming the tediousness of the cloister, and gladdening the soul of the innocent and captive."

We think we shall be rendering an acceptable service to many of our readers by giving a few plain directions for the treatment of these pretty warblers; for which we are chiefly indebted to a useful, though little appreciated work, entitled "Cage Birds," by Dr. Bechstein, and which our own experience has shown to be judicious:—

"Except in the breeding season, the male canaries should be kept alone in separate cages, which, whatever the shape, ought not to be less than eight inches in diameter and a foot in height, with two sticks placed across for the bird to perch on. The females may be allowed to range the room with one wing clipped, or, what is better, kept in large cages; where, from having plenty of exercise, their health and strength are better preserved. In the small cages, glass vases should be placed on the outside, at the extremities of the lower stick, to hold the food and water. These may be surmounted with a cap of tin, or something of the kind, to prevent the seed from being so easily scattered. Cleanliness being a great preservative against most of their disorders, the bottom of the cage should be made to draw out, that it may more easily be cleaned and covered with sand. This should be done every day, or at leas several times a week. These tender birds, being natives of a warm climate, and becoming more delicate instead of hardier from being kept in the house, require a temperature analogous to that of their native climate. They must be protected from the cold, and never allowed to remain in winter in a cold room, which would occasion many diseases, or even death. But, in summer, it is proper to place them in the open air, and they enjoy it very much. Never do they sing so gayly as on fine days, and their cages should therefore be placed at the open window, that they may have the advantage of the light and heat of the sun, which is particularly serviceable to them while bathing.

"Their food is an important point; for, in proportion as it is simple and natural, it will be wholesome; and, on the contrary, the more it is mixed and rare, the more injurious and productive of disease will it be. What we have found the best is summer rape-seed; we mean that which is sown at the end of spring, which is small and brown, in distinction from the winter rape-seed, which is sown in the autumn, and which is large and black. This seed alone agrees with canaries as well as linnets; but, to give them the pleasure of variety, a little bruised hemp, or canary, or poppy seed is added to it, especially in the spring, when they are intended to breed. Indeed, a mixture of rape-seed, oatmeal, and millet, or canary-seed, may be given them as a great treat. But whatever seeds they may have, they equally require green food, as chickweed in spring, lettuce and radish leaves in summer, endive, watercress, and slices of sweet apple in winter. As to that whimsical and complicated mixture, prescribed and used by many people, of rape, millet, hemp, canary-seed, whole oats and oatmeal, poppy, lettuce, plantain, potentilla, and pink-seeds, maize, sugar, cake, hard biscuit, cracknels, buns, and the like, so far from being wholesome, it injures the birds in every respect. It spoils their taste, weakens their stomach, renders them feeble, sickly, and incapable of bearing moulting, under which they most frequently die. It is true, that they may be accustomed to eat every thing which comes to table; but to teach this habit is also to prepare a poison for them, which though slow is not the less sure, and brings them to a premature death; while every day we see bird-fanciers, who are poor, who hardly know the names of those delicacies, rear, on the simplest food, a considerable number of the healthiest, cleverest, and strongest canaries. We must, however, be guided in a great measure by the constitution of the birds. They should be daily supplied with fresh water, as well for drinking as bathing, in which they delight. In the moulting season, a nail or bit of iron should be put into the water, in order to strengthen the stomach. Saffron and licorice are in this case more hurtful than useful. Grains of sand, with which the bottom of the cage is strewed, afford the birds a help to digestion."

AVARICE is a passion as despicable as it is hateful. It chooses the most insidious means for the attainment of its ends: it dares not pursue its means with the bold impetuosity of the soaring eagle, but skims the ground in narrow circles like the swallow.

FARMERS' DEPARTMENT.

THE APPLE-ORCHARD.

In a mistaken zeal to eradicate the seeds of intemperance, we are afraid that some, by destroying their apple-orchards, are not only diminishing their innocent family comforts, but are seriously impairing their means of honest farm profits. We do not advocate the orchard on account of the alcohol its fruit affords in distillation—such a practice we deprecate; nor will we urge *tetotallers* to cultivate the apple for cider, if they deem this liquor hurtful—though we still adhere to the "steady habits" of our New England ancestry, in taking a glass of this racy beverage with our dinner—we will not advocate the orchard for the *liquor* it affords, but for the *food*—the beef, pork, milk, &c., into which its fruit can be readily transformed.

For the family, apples may be made to contribute alike to health, to pleasure, and to economy, and greatly to diminish the consumption of more costly food. As dessert fruits, they are surpassed but by few in quality, and by none in durability; while in the culinary department, they afford a grateful repast, baked, boiled, roasted or fried, and to borrow terms from the cook's book, may be served up with rice, flour, &c., in black-cap, charlotte, cheese-cakes, compotes, cumplings, fritters, festoon, floating-islands, fool, fraze, glazed, in gelly, marmalade, pancakes, pies, puddings, preserves, poupeton, soufflet, in water, à la Turque. In all these forms, we believe the apple is perfectly guileless, and in most of them may be indulged in by the robust and the delicate, and by rich and poor.

In the economy of the farm, apples are no less serviceable. Every kind of farm stock feeds and fattens upon them. They serve as a substitute for corn in the piggery, for oats in the horse-stable, and for slops in the cow-stall. They were evidently destined for the comfort of man; and because they are capable of being converted to a bad use, shall we, for this reason, reject the many benefits they are calculated to afford us? Because bread corn is convertible into alcohol, is it less worthy of our care and culture as an article of food? Those alone who *abuse* the gifts of Providence, are obnoxious to publick morals.

Our orchard, though a young one, is of great value to us. The early droppings of fruit were gathered by our pigs, and they contributed much to fit them for the fatting pen; and subsequently by boiling them with small potatoes, for fattening hogs, they have enabled us to save a good portion of our soft corn, which in ordinary years has not suffered for finishing our pork, say forty or fifty bushels, to deal out to our store shoats. Our orchard has enabled us to dispose of some fifty barrels of choice winter fruit, and to manufacture nearly as many barrels of cider, and it is now in the form of *pomace*, adding greatly to the products of our diary. On the first of December, we began to feed the pomace to seven milch cows, and have continued to feed them with a common wheelbarrow full per diem, and the effect has been *to increase the quantity of milk nearly fifty per cent.* The pomace has not undergone but slight if any fermentation.

The great indifference to orchards, we have no doubt, arises from an ignorance of the many advantages which they are capable of affording to the farm, and to the bad quality of the fruit which is generally cultivated. The nutritive properties of the apple depend upon the quantity of saccharine matter they contain, or the specifick gravity of their juice; and the difference in flavour and in their cooking properties, are not sufficiently regarded, and not generally known. We have probably the finest varieties of this fruit, of any country in the world, which come to maturity in succession, so as to afford a supply for the family the whole year, and yet probably not one family in a thousand enjoy them, or know the existence of the better half.

Albany Cultivator.

THE DAIRY.

The properties of a good milk-house are, that it be cool in summer, and moderately warm in winter, so as to preserve a temperature of about forty-five degrees throughout the whole year; and that it be dry, so as to admit of its being kept clean and sweet at all times. A butter-dairy should consist of three apartments—a milk-house, a churning-house with a proper boiler, and other conveniences for scalding and washing the implements, which should be dried out of doors when the weather will permit The cheese-dairy should likewise consist of three apartments—a milk-house, a scalding and pressing-house, and a salting-house. To these should be added a cheese-room or loft. A dairy for a small family may be formed in a thick-walled dry cellar, having windows on the north and east sides, which are preferable for ventilation. In winter these windows should have bauble sashes, and in summer, a fixed frame of close wire netting, or hair-cloth, to exclude flies and other insects.

In most places cows are milked twice in twenty-four hours, throughout the year. Where quantity of milk or cheese is an object, three times milking must be preferable, but as twelve hours are necessary for the due preparation of the milk in the cow, it must be inferiour in quality if drawn more than twice a day. Whatever be the times of milking, the milk should be drawn off clear, otherwise, what is left will be reabsorbed into the system, and no more be generated than is requisite to supply the quantity actually drawn. The milker, whether a man or a woman, ought to be mild in manners, and good tempered. If the operation is performed harshly, it becomes painful to the cow, who, in this case, often brings into action her faculty of retaining her milk at pleasure; but if gently performed, it seems rather to give pleasure. When cows are ticklish, they should be treated with the most soothing gentleness, and never with harshness or severity; and when the udder is hard and painful, it should be tenderly fomented with lukewarm water, and stroked gently, by which simple expedient the cow will be brought into good temper, and will yield her milk without hesitation. Whenever the teats of cows become scratched, or wounded, so as to produce foul or corrupted milk, it ought on no account to be mixed with the sweet milk, nor carried into the milk-house, lest it should taint the atmosphere, and this prove injurious to the rest of the milk.

Cows should be milked as near the dairy as pos-

sible, in order to prevent the necessity of carrying and cooling the milk before it is put into the creaming dishes. Every cow's milk should be kept separate till the peculiar properties of each is so well known as to admit of their being well classed, when those that are most nearly allied, may be mixed together. The very best quality of butter can only be economically made in those dairies where cheese is also made; because in them the best part of each cow's milk (the first drawn off) can be set apart for throwing up cream, the cast part of this cream (the first separated) can be taken in order to make into butter, and the remainder, or all the rest of the milk and cream of the dairy, can be turned into cheese. The spontaneous separation of cream, and the production of butter, are never effected but in consequence of the production of acid in the milk. Hence it is, that where the whole milk is set apart for the separation of cream, and the whole of the cream is separated, the milk must necessarily have turned sour before it is made into cheese; and no very excellent cheese can be made from milk which has once attained that state.

CALVES.

The following mode of rearing calves, adopted by the society denominated Shakers in Canterbury, N. H., was communicated in a letter from Francis Winkley to Levi Bartlett, of Warren, N. H., and was published in the N. E. Farmer in 1824:—

"We let calves, that come in the fore part of March, suck a week or ten days, then take them from the cow, giving them a moderate allowance of new milk to drink till they have learned to drink it freely; then put in some skimmed milk, taking care to give it at about the temperature of milk taken directly from the cow, by heating a part of it and mixing it with the rest. Care should be taken not to scald the milk, when heated: also not to give them any sour milk for it will make them scourge. The trough or vessel in which they drink their milk should likewise be kept clean, and not suffered to become sour. We let the milk stand about twelve hours before it is skimmed; giving a calf at first about four quarts, night and morning; increasing the mess as need requires, till he is six weeks old, he will require, perhaps, about twelve quarts per day.

When about ten weeks old, we begin to diminish the quantity of milk for about the space of two or three weeks, at which time we wean them. During the whole process, from two to fourteen weeks of age, calves should be well supplied with good hay, salt and provender, such as oats, wheat, bran, and oil-cake, ground fine.

The particular advantages to be derived from the above method of treatment, are the following:—

1. It is much cheaper than to let them suck in the ordinary way; whereas it makes a great saving of cream for butter, and that without injuring the calves if they are properly attended to.

2. It prevents calves from moaning or pining so much while weaning as they would otherwise do, when taken from the cows.

3. It not only prevents the cows from being injured in consequence of the calves biting the teats, but also prevents their holding back the milk from the milker, which often serves to diminish the quantity of milk afterward.

The only disadvantage to be found in the above method of treatment, is, that it requires some labour to feed them, where they thrive equally well in every respect as those do that are permitted to suck in the ordinary way.

Extracts from the discourse delivered before the N. Y. Lyceum of Natural History, by Prof. J. W. Francis.

"In Herpetology we have sufficient to gratify the keenest desires of the most ravenous student in this department of nature. The extraordinary aspect and habits of a considerable portion of reptiles in particular, which are found in the southern and western sections of the States, imperfect and superficial as our knowledge on the subject still is, invite to researches which promise to repay with adequate returns. I believe no naturalist has elsewhere found a more magnificent specimen of the *testudo coriacia*, than that caught in the waters of our bay, and now exhibited in the American Museum of this city. Several of the Ophidea, are certainly peculiar, and the *crotalus horndus*, the most formidable and invincible of poisonous serpents, was deemed by the fathers of our country, a fit emblem to designate the national standard for the anticipated glories of the new republick, created by the war of the revolution. For my own part, I concur in the wish of the patriotick Franklin, that the bald eagle had not been chosen as the representative of the American confederacy: and I think his reasons abundantly cogent: 'The eagle,' says he, 'does not get his living honestly: he is a bird of bad moral character: he is cowardly: the little king-bird, not larger than a sparrow, attacks him boldly and drives him out of his district; therefore he is not a fit representative of that yeomanry who have thus far driven all the king-birds out of the country.' So far, Dr. Franklin. As to the Coctalus, or rattle-snake, he is a genuine *aboriginal:* he is the beau-ideal of etiquette: he is never the first to molest, and he always gives due warning of his intentions by his rattles: and when his person or his rights are invaded, his aim is unerring and triumphant. Our Indians, who best know him, give him this chivalrick character.

"I would wish it to be most distinctly understood, that the observations I have just made are to be confined to the *bald* eagle. The indefatigable Audubon has lately given us a distinct notice and description of the *Falco Washingtonianus*, or Washington eagle. This noble bird first drew his attention while voyaging far up the Mississippi in 1814. The Washington eagle is bold, vigorous; superiour to vulgar expedients, he disdains the piratical habits of the bald eagle, and maintains himself, without molesting the rights of others."

"In adverting to the sublime elevation of our native pine, it was aptly said by some European writer, 'The trunk of an individual American tree is enough to constitute a becoming spire for the proudest British cathedral:' and though not allowed on this occasion to descant on the excellence of this tenant of the forests as a material in ship-building, I am nevertheless just now forcibly reminded of an incident which took place on my dining with some English savans,

just after the close of the late war, at the house of Sir James Edward Smith, the president of the Linnæan Society of London. Many interrogatories were put, touching the natural products of our vegetable world. "Your ships are built of pine, you cannot boast," says one of the guests, somewhat sarcastically, "of the English oak."—"Talk not to the doctor, of the English oak," interposed a third, (with softer feelings,) "the American pines have done their duty."

ILLUSTRATIONS OF SCRIPTURE.

[Frankincense.]

The cut above represents the tree from which the gum which is used so much in Catholick churches is received. It is a gum-resin, which distils from incisions made in the tree termed by botanists the *boswellia thurifera*; this tree somewhat resembles the sumach, and belongs to the same natural family; it grows upon the mountains of India. It is imported in semitransparent yellowish tears, or sometimes in masses; its taste is nauseous and bitter. When burnt, it gives out a strong aromatick odour, on which account it was much used in the temples of the ancients. The frankincense from Arabia is esteemed much more highly than that from India.

CLIMATE.

By the word climate, is designated a part of the surface of the earth contained between two small circles parallel to the equator, and of such a breadth, that the longest day in the parallel nearest the pole, exceeds the longest day in the parallel of latitude next the equator, by half an hour in the torrid and temperate zones, or by a month in the frigid zones, so that there are twenty-four climates between the equator and each polar circle, and six climates between each polar circle and its pole. From the foregoing definition, it appears that all places situated on the same parallel of latitude, are in the same climate; but we must not infer from thence that they have the same atmospherical temperature. Large tracts of uncultivated lands, sandy deserts, elevated situations, woods, morasses, lakes, &c., have a considerable effect on the atmosphere. For instance, in Canada, in about the latitude of Paris, and the south of England, the cold is so excessive, that the greatest rivers are frozen over from December to April, and the snow commonly lies from four to six feet deep. The Andes mountains, though some parts of them are situated in the torrid zone, are at the summit covered with snow, which cools the air in the adjacent country. The heat on the western coast of Africa, after the wind has passed over the sandy desert, is almost suffocating; while that same wind, having passed over the Atlantick ocean, is cool and pleasant to the inhabitants of the Caribbee islands.

THE SEMINOLE'S REPLY.

BY LIEUTENANT G. W. PATTEN, U. S. A.

"The attack on fort Mellon was made, it is supposed, by Philip and his gang. The action must have taken place before the information of the truce could have been received by the Indians who made the attack."—*Southern paper*

Blaze! with your serried columns,
I will not bend the knee!
The shackle ne'er again shall bind
The arm which *now* is free:
I've mail'd it with the thunder
When the tempest mutter'd low;
And where it falls ye well may dread
The lightning of its blow.

I've scared ye in the city,
I've scalped ye on the plain;
—Go, count your chosen where they fell
Beneath my leaden rain—
I scorn your proffer'd treaty,
The pale-face I defy;
Revenge is stamp'd upon my spear,
And "*Blood*" my battle cry.

Some strike for hope of booty,
Some to defend their all—
I battle for the joy I have
To see the white man fall:
I love among the wounded
To hear his dying moan,
And catch, while chanting at his side,
The musick of his groan.

Ye've trail'd me through the forest,
Ye've track'd me o'er the stream,
And struggling through the everglade,
Your bristling bayonets gleam:
—But, I stand as should the warriour,
With his rifle and his spear;
The scalp of vengeance still is red,
And warns ye—"*Come not here.*"

Think ye to find my homestead!
I gave it to the fire:
My tawny household do you seek?
I am a childless sire.*
But should ye crave life's nourishment,
Enough I have and good;
I live on hate—'tis all my bread,
Yet light is not my food.

I loathe ye with my bosom—
I scorn ye with mine eye—
And I'll taunt ye with my latest breath,
And fight ye till I die.
I ne'er will ask ye quarter,
And I ne'er will be your slave;
But I'll swim the sea of slaughter,
Till I sink beneath its wave.

* It will be remembered, that many of the Seminoles killed their children; they being considered an incumbrance to the war.

REVOLUTIONARY ANECDOTES.

GENERAL PUTMAN.

During the revolutionary war, when General Putman was in command of an important fortress in the Highlands of the Hudson river, his force had been so much weakened by the expiration of limited enlistments, and the withdrawal of troops for the protection of other important passes, that the enemy ventured to besiege his fort. The siege was extended beyond the patience of a veteran, whose feelings were more in favour of field fights, than of artificial manœuvres. He was still more annoyed by a bandylegged drummer, who approached an angle of the fort every morning, to beat an insulting reveille. After having chafed under the insult, like a caged lion, he procured one of the Dutch ducking-guns, of caliber and length sufficient to reach the drummer, and punish his audacity. He stationed himself with this weapon at the parapet, and soon saw his insulting victim approaching. He had scarcely struck the first note of defiance, when drum and drummer rolled in the dust.—"There," exclaimed the satisfied general, "go to **** with your sheep-skin fiddle!"

LIEUTENANT MOORE.

A few days previous to the evacuation of Charleston, a very rash expedition, suggested by General Kosciusko, occasioned the loss of Captain Wilmot and Lieutenant Moore, two of the most distinguished partisans in the service. The object was to surprise a party of wood-cutters from Fort Johnstone, working in view of the garrison of Charleston. The party found their enemy prepared, and received so deadly a fire, that Wilmot and several of his men fell lifeless, while Moore and many others remained on the field covered with wounds. Kosciusko, although a spontoon was shattered in his hand, and his coat pierced with four balls, escaped unhurt. A British dragoon was in the act of cutting him down, when he was killed by Mr. William Fuller, a very young and gallant volunteer, who had joined the expedition.

This was the last blood shed in the revolutionary contest. The British buried Wilmot with the honours of war; and shewed the greatest attention to Moore, who was removed to Charleston, to receive the best surgical assistance. The amputation of the limb, in which he received his principal wound, being indispensible, it was performed within a few days after the evacuation by their own surgeons; but mortification rapidly following, he died greatly and universally lamented. When first brought into town, great pains were taken by the British surgeons to extract the ball, but without success. Mrs. Daniel Hall, in whose house he lodged, and who had watched over him unremittingly, being apprized of the business which brought the most distinguished surgeons together, entering the apartment of Moore, as soon as they had retired, said, "I am happy to find that you have not been subjected to so severe an operation as I had anticipated; you appear to have experienced but little agony. I was constantly in the next room, and heard not a groan."—"My kind friend," he replied, "I felt not the less agony; but I would not have breathed a sigh in the presence of British officers, to have secured a long and fortunate existence."

GENERAL JACKSON.

General Jackson, at a very early period of his life, aspired to obtain celebrity. At the age of fourteen he commenced his military career, and shared the glory of the well-fought action at Stono. Made a prisoner in his native settlement at the Wacsaws, shortly after the surrender of Charleston, his manly opposition to the orders of an unfeeling tyrant who wished to impose on him the duties of a hireling, gave superiour claims to applause. Wounds were inflicted and increase given to persecution, but without affecting either the steadiness of his principles or the firmness of his resolution. He told his oppressor—"You may destroy, but can never bend me to a submission."

The severity of this treatment arose from his refusal to obey an officer who ordered him to clean his boots. The spirit of the youth, which ought to have called forth applause, excited no sentiment but that of unbridled resentment.

BRITISH ATROCITIES.

When General Provost invaded Carolina, a considerable British force occupied the house and plantations of Mr. Robert Gibbes, on the Stonto river. At the period of their arrival there, Mr. John Gibbes, a respectable gentleman, worn down by age and infirmity, was on a visit to his brother. His usual residence was on a farm called the Grove, where the race-ground is now established. In addition to numberless exoticks, he had a green-house and pinery in the best condition. A Major Sheridan, arriving from the army on the Neck, at Mr. Gibbes's, was asked by an officer in the presence of the brothers—"What news? Shall we gain possession of the city?"—"I fear not," replied Sheridan, "but we have made glorious havock of the property in the vicinity. I yesterday witnessed the destruction of an elegant establishment, belonging to an arch-rebel who, luckily for himself, was absent. You would have been delighted to see how quickly the pineapples were shared among our men, and how rapidly his trees and ornamental shrubs were levelled with the dust."

Mr. John Gibbes, who was a man of strong passions, could hear no more, and, regardless of consequences, with indignation exclaimed, "I hope that the Almighty will cause the arm of the scoundrel who struck the first blow, to wither to his shoulder." "How is this, sir?" said Sheridan, "dare you use such language to me?"—"Yes," said Mr. Gibbes, "and would repeat it at the altar!"—"The provocation," said the commanding officer present, "sufficiently justifies the anger of Mr. Gibbes; for your own credit, Sheridan, let the matter drop." The catastrophe was dreadful. To banish thought, Mr. Gibbes, unhappily driven to an intemperance before unknown, retired to his bed, and rose no more.

USEFUL KNOWLEDGE.

To Dissolve Gum-Elastick.—M. Grossart, by an ingenious method, succeeded in forming India-rubber into elastick tubes. Cut a bottle of the gum circularly, in a spiral slip of a few lines in breadth; then plunge the whole of the slip into vitriolick ether, till it becomes softened; half an hour is generally sufficient for this purpose. The slip is then taken out of the liquid, and one of the extremities applied to the end of a mould, first rolling it on itself, and pressing it, then mounting spirally along the cylinder, taking care to lay over and compress with the hand every edge, one against the other, so that there may not be any vacant space, and that all the edges may join exactly; the whole is then to be bound hard with a tape of an inch in width, taking care to turn it the same way with the slip of caoutchouck. Over the tape, packthread is to be applied, in such a manner, that by every turn of the thread joining another, an equal pressure is given to every part. It is then left to dry, and the tube is made. In removing the bandage great care must be taken, that none of the outward surface which may have lodged within the interstices of the tape, (of which the caoutchouck takes the exact impression,) may be pulled asunder. If it is found difficult to withdraw the mould, it may be plunged into hot water. If the mould were previously smoked or rubbed with chalk, it might be removed with less difficulty. Polished metallick cylinders are the most eligible moulds for this purpose. As solvents, oils of turpentine and lavender may be employed, but both are much slower of evaporating the ether, and the oil of turpentine, particularly, appears to have a kind of stickiness. Nevertheless, there is a solvent which has not that inconvenience, is cheaper, and may easily be procured by every one, viz. *water*. Proceed in the same manner as with ether. The caoutchouck is sufficiently prepared for use when it has been a quarter of an hour in boiling water: by this time its edges are sometimes transparent. It is to be turned spirally round the mould, and replunged frequently into the boiling water, during the time employed in forming the tube. When the whole is bound with packthread, it is to be kept some hours in boiling water, after which it is to be dried, still keeping on the binding. This method may be successfully employed in forming the larger sort of tubes, and in any other instruments, but it would be impracticable to make the small tubes in this way.

Oil of lavender, of turpentine, and of spikenard, dissolve gum-elastick, with the assistance of a gentle heat; but a mixture of volatile oil and alcohol forms a better solvent for it than oil alone, and the varnish dries sooner. If boiled in a solution of alum in water, it is rendered softer than in water alone. Yellow wax, in a state of ebullition, may be saturated with it, by putting it, cut in small pieces, gradually into it. By this means, a pliable varnish is formed, which may be applied to cloth with a brush, but it still retains a clamminess.

To make caoutchouck varnish.—Take caoutchouck, or elastick resin, boiled linseed oil, essence of turpentine, each sixteen ounces.

Cut the caoutchouck into thin slips, and put them into a matrass placed in a very hot sand-bath. When the matter is liquefied, add the linseed oil in a state of ebullition, and then the essence warm. When the varnish has lost a great part of its heat, strain it through a piece of linen, and preserve it in a wide-mouthed bottle. This varnish dries very slowly, a fault which is owing to the peculiar nature of the caoutchouck.

The invention of air-balloons led to the idea of applying caoutchouck to the composition of varnish. It was necessary to have a varnish which should unite great pliability and consistence. No varnish seemed capable of corresponding to these views, except that of caoutchouck, but the desiccation of it is exceedingly tedious.

To Varnish Balloons.—The compositions for varnishing balloons have been variously modified; but, upon the whole, the most approved appears to be the bird-lime varnish of M. Faujas St. Fond, prepared after M. Cavallo's method as follows: "In order to render linseed oil drying, boil it with two ounces of sugar-of-lead, and three ounces of litharge, for every pint of oil, till they are dissolved, which may be in half an hour. Then put a pound of bird-lime, and half a pint of the drying-oil, into an iron or copper vessel, whose capacity should equal about a gallon, and let it boil very gently over a slow charcoal fire, till the bird-lime ceases to crackle, which will be in about half, or three quarters of an hour; then pour upon it two pints and a half more of the drying-oil, and let it boil about an hour longer; stirring it frequently with an iron or wooden spatula. As the varnish, while boiling, and especially when nearly ready, swells very much, care should be taken to remove, in those cases, the pot from the fire, and to replace it when the varnish subsides; otherwise it will boil over. Whilst the stuff is boiling, the operator should occasionally examine whether it has boiled enough; which may be known by observing whether, when rubbed between two knives, which are then to be separated from one another, the varnish forms threads between them, as it must then be removed from the fire. When nearly cool, add about an equal quantity of oil-of-turpentine. In using the varnish, the stuff must be stretched, and the varnish applied lukewarm. In twenty four hours it will dry."

To kill Rats or Crows.—Bruise half an ounce of nut vomica, and soak it twenty-four hours in warm water; then add four quarts of corn, and soak it twelve hours; then sow the corn on the ground immediately after planting.

To destroy Insects in Gardens.—A mode of destroying insects in gardens which may sometimes be adopted to advantage is as follows:—

Make a small coop for each hen that has chickens, so that the brood can run in and out; place it near your squash or cucumber-beds, and the chickens of three and four weeks old, will be very active in picking up worms and bugs, without scratching or doing any mischief among the vegetables.

To Improve and Increase Sugar.—To five pounds of coarse brown sugar, add one pound of flour, and there will be obtained six pounds of sugar worth ten per cent. more in colour and quality.

MISCELLANY.

REMARKABLE DISCOVERY.

It is well known to our readers, that among the many natural curiosities found in the extensive caves and grottoes in the vicinity of the great Laurel Ridge, (Cumberland mountains,) many human skeletons and bones of animals have been discovered, some of them in a petrified state. These caves abound in prodigious vaulted apartments and chambers, which, when viewed by torch-light, exhibit scenes of gloomy grandeur which astonish the beholder. Several petrified trees have also been discovered on the banks of the river near this ridge, as also bones of mammoths, and other animals whose races are now extinct.

But the most remarkable discovery that has ever been made in this part of the country—if not the greatest natural curiosity in the world, was brought to light on Sunday, twenty-fourth January, by two scientifick gentlemen with whom we are acquainted, and who are now in town. They have been for several weeks exploring the caves above alluded to, and gathering such curiosities as they wished to carry away with them.

They are provided for this purpose with a boat of gum-elastick, and capable of buoying two persons. With this boat, and other conveniences procured for the purpose, they will, undoubtedly, before they leave their task, penetrate every accessible hole in the west Cumberland mountains—for they are determined to spend the whole season among them.

The wonderful discovery which will now shortly be presented to the publick, is *three petrified bodies entire*, one of a dog, and two human bodies, one of them holding a spear. It is believed by these gentlemen, that all three of the bodies may be removed from their position in a perfect state—though the dog, being in a lying posture upon a flat rock, it will undoubtedly be a difficult task to remove it uninjured. The human bodies appear to be those of men—probably hunters. Their clothing can hardly be distinguished—but still it is evident that that too was in a measure turned into stone. They are described thus: One sitting, with the head leaned as it were against a projecting rock, and the other standing, with a spear balanced in his hand, as though he was surprised, and had just started on a quick walk. The dog lies as if crouched in terrour, or about to make a spring—but the features, or body, is not distinct enough to determine which position.

This wonderful formation cannot be accounted for in any other way, than that these persons were buried by some terrible convulsion of nature. The cave in which they were found, is full one hundred and twenty-eight feet into the mountain, and is situated about a mile and a half beyond what is called Mammoth Grotto, in a direct line. The entrance to the place is difficult, and it is thought that it was never before attempted at all. At the foot of the entrance of the cave is a considerable brook of water, which appears to gather from all parts of it. There is also a valley thence to the river. The gentlemen who have made this interesting discovery, are making active preparations to bring away the bodies, which they intend to have forwarded to New York.

Since the above was written, we have had an invitation to visit the cave and bodies, which we shall most certainly accept. We have hitherto declined to mention the names of the persons to whom we have alluded in this account. One of them is a wealthy English gentleman, resident of Philadelphia, John Chester, Esq., and his companion is Mr. Jacob L. Davis, a Philadelphian. The object of their scientifick researches, is principally their own gratification. We shall next week give our readers some further particulars relative to the position of the cave, &c., which our visit will enable us to do.

Hamilton (Tenn.) Observer.

LYNCH LAW.

Lynch Law had its origin in 1780, as known by that appellation, in a combination of the citizens of Pittsylvania, Virginia, entered into for the purpose of suppressing the depredations of a trained band of horse-thieves and counterfeiters, whose well-concerted schemes had bidden defiance to the ordinary laws of the land, and whose success encouraged and emboldened them in their outrages upon the community. A late number of the Southern Literary Messenger contains a copy of the constitution, dated Sept. 22, 1780, adopted for their government in visiting the guilty offenders with summary justice, which, from its having been drawn up by Col. William Lynch of that county, has given the name of *Lynch Law* to the summary infliction of punishment by private and unauthorized individuals ever since. The Editor says he is informed by a member of the association, that its efforts were completely successful in arresting the ravages of the lawless miscreants against whom they were directed.

THE FATHER OF NANTUCKET.

We have been favoured with a copy of manuscript history, of no doubtful authority, which states that Thomas Macy was the first white person that settled on the island of Nantucket, and which contains some amusing incidents in relation to his history. It the year 1665, King Philip, the sachem of Mount Hope, went to Nantucket with his retinue in pursuit of one of his tribe who was guilty of the enormous crime of sacrilege, inasmuch as he had taken the name of a deceased sachem in vain. The name of the criminal was Asassam, (John Gibbs,) and the impious act which he had committed had aroused the indignation of his whole tribe. Philip and his suite landed from their canoes, on the west end of the island, and travelled to the settlement on the east end, where the criminal had taken refuge. On his arrival there, the criminal fled to good old Thomas, (whom both whites and Indians loved and respected,) implored his protection, and was concealed. Philip demanded him, and became so warlike that an assembly of the white inhabitants took place, when a treaty was entered into by the parties, one condition of which was, that Philip should have all the money on the island, if he would relieve the criminal. A collection took place, *nineteen shillings* were raised for Philip, and he returned to Mount Hope satisfied. Mr. Macy was equally happy in his whole system of government, and was highly esteemed from the fact that he was the first white inhabitant of the island.

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